

Regional
Cluster Atlas
Baden-Württemberg

2019

Overview of Cluster-Related Networks and Initiatives

—
www.clusterportal-bw.de



Baden-Württemberg

MINISTRY OF ECONOMIC AFFAIRS, LABOUR AND HOUSING

Regional
Cluster Atlas
Baden-Württemberg

2019

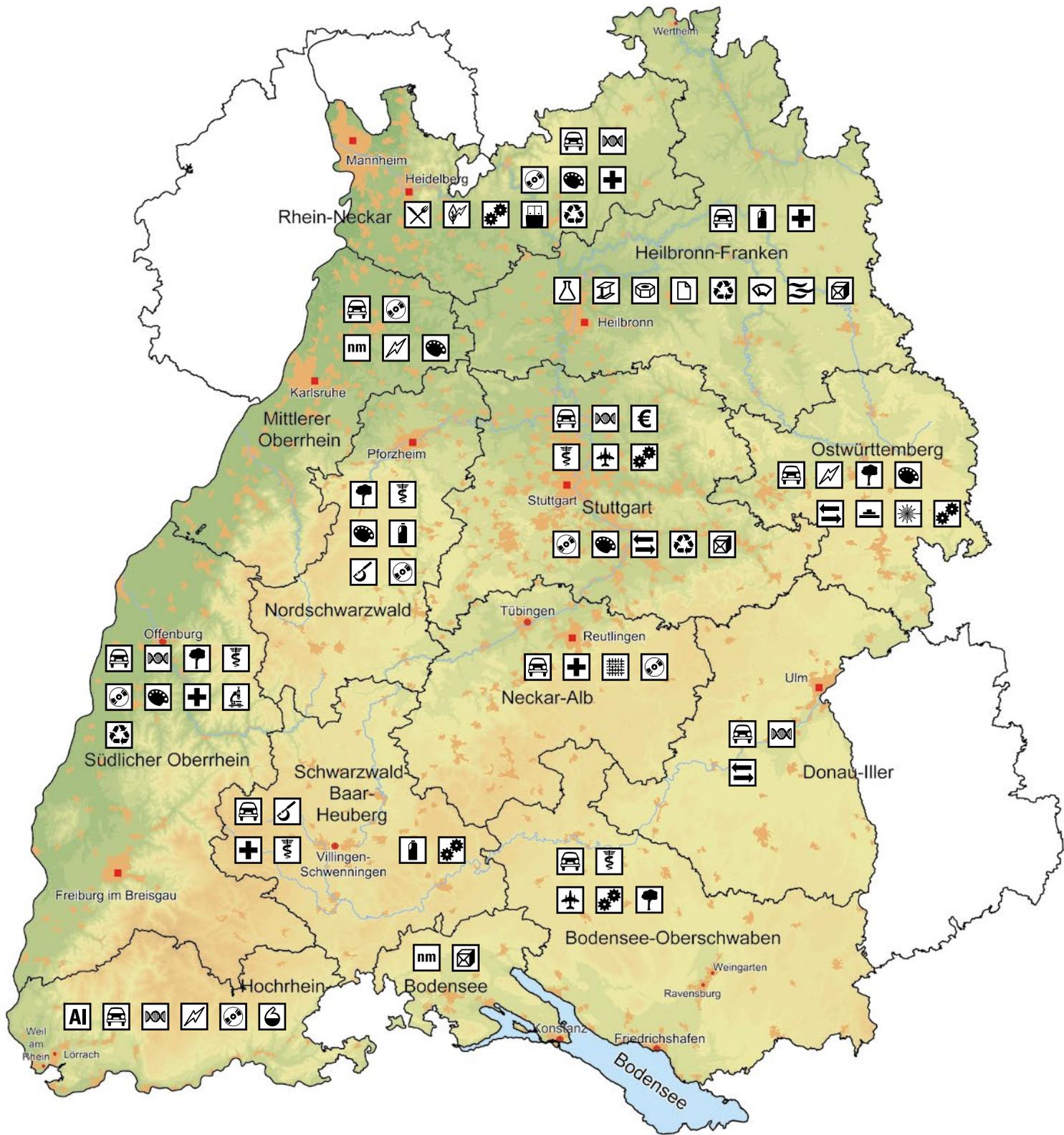
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Explanation of symbols for the regional cluster map

 Aluminium processing	 Medical technology
 Automotive	 Metalworking
 Biotechnology	 Microsystems technology
 Chemicals	 Assembly and fastening technology
 Energy	 Nanotechnology
 Precision engineering / mechanics etc.	 Surface technology
 Financial accounting	 Organic electronics
 Forestry and wood	 Paper processing
 Healthcare	 Photonics
 Information technology / corporate software	 Production engineering Machine, system and tool construction
 Creative economy	 Memory systems and smart grids
 Plastics engineering and processing	 Textiles and clothing
 Laboratory glass	 Environmental technology
 Food industry	 Valve, measurement and control technology
 Logistics (incl. intralogistics)	 Fans and ventilation technology
 Aerospace	 Packaging technology

Baden-Württemberg Regional Cluster Map



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be informed
involved in

Preface



Ladies and Gentlemen,

One key goal of the Cluster Atlas has not changed since it was first published ten years ago: Informing companies comprehensively about regional cluster initiatives, their quality and their performance. The Baden-Württemberg cluster landscape, however, has changed during this time. Because of this, the Cluster Atlas also describes the development of cluster initiatives in our state over the past few years.

Cluster initiatives make it possible for companies to quickly exchange ideas through close collaboration on a regional level, promoting the economic development of a region. They are also increasingly able to establish international partnerships and relationships. By doing so, they make developments and trends on international markets accessible to companies in the state.

A national and European-wide comparison shows: We in Baden-Württemberg have strong cluster initiatives. And we want to keep it that way. Because only high-performing cluster management benefits member companies.

Small and mid-sized companies in particular need strong partners in this era of digitisation, globalisation, and technological and demographic shifts. This is the only way they will be able to address current challenges and solve problems. Because of this, the information provided by the Cluster Atlas is more important for them than ever before.

In the new issue of the Cluster Atlas, companies and research institutions, colleges and universities, and all other stakeholders will find information on roughly 110 cluster initiatives, state-wide networks, and state agencies. In addition, the cluster portal at www.clusterportal-bw.de provides a web-based cluster database that is continuously updated.

I hope that you, our readers, will get to know the cluster landscape in Baden Württemberg better so you can utilise it for your own innovations – it pays!

I hope you enjoy reading this Cluster Atlas and wish you much inspiration for your own work!

You are welcome to explore the Cluster Atlas and the Baden-Württemberg Cluster Portal and use them for your own innovations and cluster policies.

Nicole Hoffmeister-Kraut

Dr. Nicole Hoffmeister-Kraut MdL

Minister of Economic Affairs, Labour and Housing of the state of Baden-Württemberg



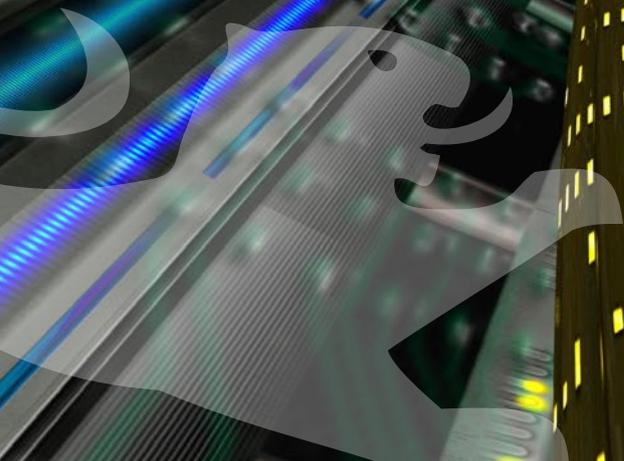
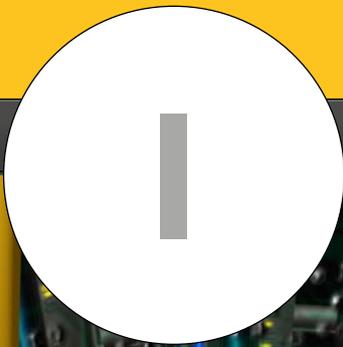
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Introduction

Structure and content of the Cluster Atlas

The Cluster Atlas offers basic relevant information on regional clusters in Baden-Württemberg and on existing, innovation-oriented regional cluster initiatives. It also deals with research, development and transfer institutions involved in clusters in the different regions of the state. Furthermore, it presents the state-wide innovation networks and state agencies.

The printed version of the Cluster Atlas is supplemented by a web-based Baden-Württemberg Cluster Database, which provides further detailed information on the individual cluster initiatives. The Cluster Database is available at: www.clusterportal-bw.de/clusterdaten/clusterdatenbank.

The Cluster Atlas covers roughly 110 cluster initiatives, many of which cross various sector and regional boundaries. It is proof of the expansive and diverse cluster landscape in Baden-Württemberg. The 2018 Cluster Atlas, like its predecessors, maintains the proven classification of clusters into Baden-Württemberg's twelve "planning regions" (Raumordnungsregionen).

Information on each region is divided into the following sections:

1. A title page with a short presentation characterising the region with relevant structural data.
2. The individual descriptions of the regional clusters with associated cluster initiatives and contact information.
3. An overview of the colleges and research- and transfer institutions relevant for the regional cluster.

In addition, chapter I includes a description of all state-wide and national networks and state agencies.

A detailed explanation of the structural data (innovation index, employees in the individual sectors and R&D personnel ratio) selected to present the region is provided for you in chapter IV (p. 149 / 150).

In order to structure the different clusters and cluster initiatives within a region, these have been classified into the 18 target fields (e.g. automotive, biotechnology, creative economy, IT and telecommunications, etc.) of Baden-Württemberg's cluster policy. In addition, healthcare and environmental technology were added as two additional fields to the cluster initiatives' structure due to their growing importance.

However, not all of the regional cluster initiatives identified can be neatly assigned to these cluster policy target fields; some of the regional clusters and their initiatives intersect with several of the target fields indicated. This is particularly true of clusters like electromobility, the packaging industry, surface technology or fastening technology, which play a certain singular role. Because of this, and because of the importance of these fields (which has grown historically) and to maintain the defining regional character of these clusters, the original cluster designations have generally been maintained.



Cluster policy in Baden-Württemberg

The Baden-Württemberg cluster policy, a key component of the innovation and mid-sized business policy, focuses on strengthening the innovative capacity of companies within the state and thereby increasing the competitiveness of the Baden-Württemberg economy and positioning Baden-Württemberg as an international economic location.

Joint action through cluster initiatives considerably strengthens relationships between economic actors within a region. This helps partners to carry out joint activities and projects, especially between companies as well as between companies and research institutions. In addition, new relationships can be formed across states and industries, frequently resulting in new knowledge and new ideas. This improves the companies' innovative capacity and international competitiveness in the long-term, in particular for small and mid-sized companies.

In addition to cluster initiatives and state-wide networks, other actors such as development agencies are key drivers for implementing regional innovation processes. Therefore, the cluster policy both systematically supports the development of clusters, cluster initiatives and state-wide networks and increasingly supports regions in developing and implementing innovation and networking activities. The policy focuses specifically on cooperations that cross fields of industry and technology as well as internationalisation measures. The clear goal of the Baden-Württemberg state cluster policy is to further professionalise cluster management and help increase the quality of cluster management.

The dialogue-oriented cluster policy follows a bottom-up approach and uses a variety of measures and instruments. The success of this policy is underscored by the fact that many cluster initiatives from Baden-Württemberg have been honoured in national and regional competitions. They are also enjoying increasing success in European grant programmes.

Support for cluster initiatives and networks in the state can be divided into three action areas. First, there are instruments for supporting and promoting cluster and network developments. These include information and networking or promoting cluster excellence. In addition, grant programmes for cluster initiatives, networks and regional innovation drivers offer financial support to projects and measures focused on innovation and networking activities. The third action area focuses more strongly on further integrating cluster initiatives as actors in a regional innovation policy.

Instruments for promoting cluster and network development

Image 1 shows the different measures and instruments utilised in Baden-Württemberg since 2006 under the targeted cluster policy to support cluster initiatives and state-wide networks, in chronological order. As the image

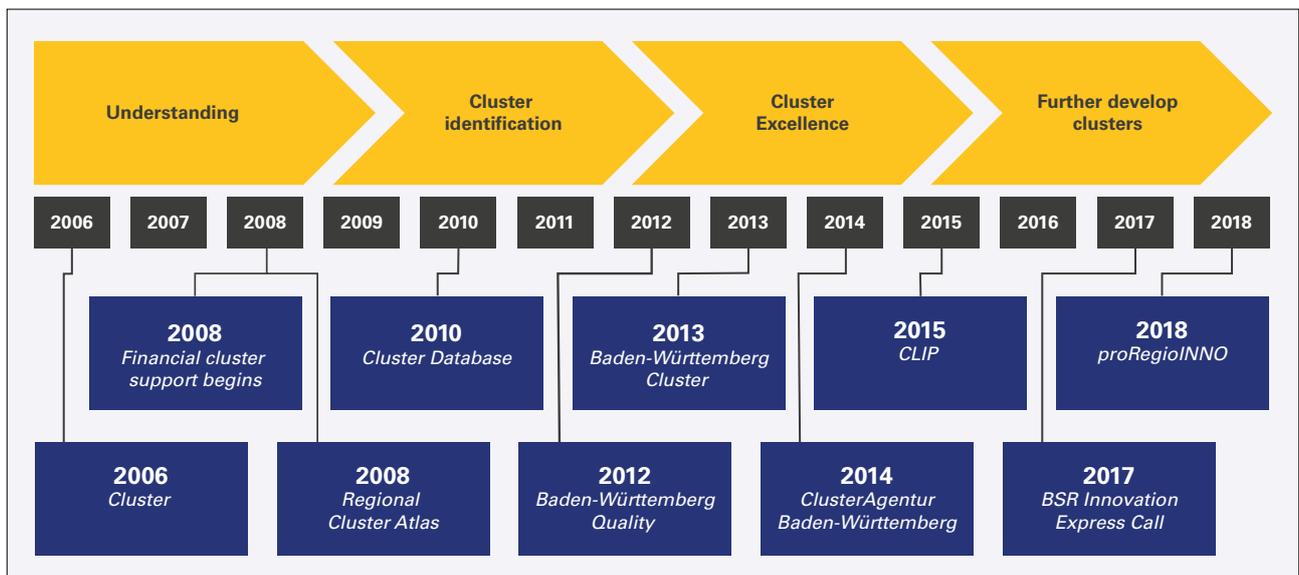


Image 1: Baden-Württemberg cluster policy instruments and changing requirements (Source: CA BW, 2018)

clearly shows, the focus of the measures has changed over time. Although it was initially important to make the term “cluster” comprehensible and make transparent the cluster landscape in Baden-Württemberg, with its cluster initiatives and networks, today the focus is more on measures designed to further professionalise existing cluster and network management and support them in handling the challenges associated with globalisation and demographic change. This also includes better preparing cluster management to handle tasks like internationalisation and implementing cross-sector innovation processes to the benefit of cluster actors.

The following section will describe several instruments of the Baden-Württemberg cluster policy in more detail.

Understanding clusters – The cluster dialogue

The Baden-Württemberg cluster policy is based on dialogue with regional actors and on cluster initiatives and state-wide networks. As such, it uses a bottom-up orientation right from the start. In the context of cluster funding, bottom-up means that support service goals and measures are not simply provided through the policy or by the public sector (top down), but instead are oriented around the needs and challenges of the regions and their companies. This principle applies both to the cluster initiatives, whose thematic focuses and range of services respond to specific local circumstances and to the cluster policy itself.

Accordingly, cluster policy instruments are developed through dialogue with cluster actors from the regions. This

principle is also reflected in the umbrella idea of the “cluster dialogue” as a guiding concept for the state’s cluster policy measures.

Cluster policy activities are divided into different formats for specific target audiences under the umbrella of the cluster dialogue (see image 2):

1. Cluster Dialogue

Current questions and measures related to the Baden-Württemberg cluster policy are discussed and developed through the cluster dialogue. In addition to the twelve regional cluster contacts, representatives of state agencies, chambers and other organisations such as Steinbeis 2i GmbH and Baden-Württemberg International GmbH, take part in the cluster dialogue.

The results of the cluster dialogue and its working groups are integrated into cluster policy goals and state measures. This collaboration produced the Cluster Atlas and Clusterportal Baden-Württemberg (Clusterportal BW) with the Cluster Database and the new funding approaches.

The cluster contacts from the twelve state planning regions have a unique role. Regional cluster contacts represent the interests of the cluster initiatives within their regions in the cluster dialogue and act as direct contact partners for the Ministry of Economics, Labour and Housing Baden-Württemberg. They convey cluster policy goals and ideas from the state level to the regions. In addition, they serve as contact partners for regional cluster initiatives and repre-

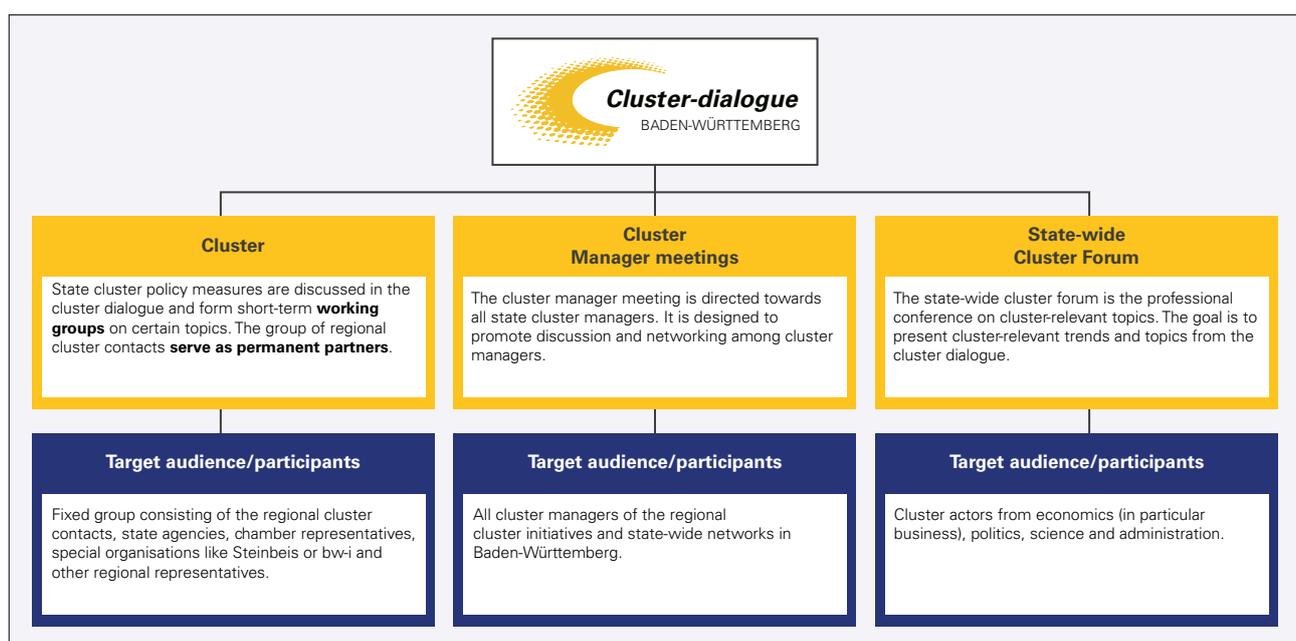


Image 2: Cluster Dialogue overview

sent their needs, ideas, and problems to the Ministry. A list of regional actors is provided in the overview of “Regional Cluster Contacts” (p. 140) or at: www.clusterportal-bw.de/regionen.

2. Cluster Manager Meetings

The cluster manager meeting is held once annually. Representatives from all of the cluster initiatives listed in the Cluster Database and from state agencies and state-wide networks are invited to the meetings. This state-wide cluster manager meeting serves to exchange cluster-specific information and experiences and as a networking platform.

The conference offers cluster managers an opportunity to discuss their challenges and problems with one another and directly with cluster policy actors in the state and find common solutions. The Ministry uses the conference to convey key cluster policy messages and results from cluster dialogue working groups.

3. Cluster Forum

The state-wide Cluster Forum was held for the first time in 2007 and has been held every two years since then. The goal of the professional conference is to make a variety of cluster-related topics accessible to a broader public, in particular to representatives from economics, politics, and science. Current topics, trends, and developments are presented and discussed with participants. The 7th Baden-Württemberg Cluster Forum was held on 15 June, 2016, and focused on the topic of “Breaking new ground with clusters: Inspiration for lateral thinking and breaking free”.

Identifying clusters – Cluster Atlas, Cluster Database and Baden-Württemberg Cluster Policy

Even today, Baden-Württemberg is one of the few regions within Europe that has prepared a detailed accounting of all its clusters, cluster initiatives and state-wide networks and their structural data, thereby ensuring transparency. The first Baden-Württemberg Cluster Atlas was issued in 2008 with the goal of providing an overview of the cluster landscape in Baden-Württemberg.

The terms cluster, cluster initiative and state-wide network were scientifically defined as part of preparing the Cluster Atlas. Such definitions facilitate a common understanding and uniform use of the terms. Terms are defined in the chapter “Cluster policy terms and target fields” (p. 143 / 144).

The BW Cluster Portal was also created as a modern web presence for cluster initiatives, state-wide networks, and state regions. Cluster actors, companies, and the public can access www.clusterportal-bw.de to learn all about the topic of clusters.

The core of the Clusterportal BW is the web-based Cluster Database, introduced in 2010, which lists all of the cluster initiatives and state-wide networks in Baden-Württemberg with full descriptions. The Cluster Database offers a professional platform for presenting cluster initiatives and provides a current database for potential customers and stakeholders. You can access the Cluster Database at: www.clusterportal-bw.de/clusterdaten/clusterdatenbank.

In addition, current cluster-related developments are also presented on the Clusterportal BW. Specific problems such as the internationalisation of cluster initiatives or their evaluation and performance assessment are dealt with through practical examples. In addition, the different regions present their cluster initiatives on the Clusterportal BW, for instance providing information on events or current developments.

Cluster excellence – The quality label “Baden-Württemberg cluster excellence”

To ensure long-term development of cluster initiatives within Baden-Württemberg, it is not enough to simply establish cluster management structures. Instead, these need to be consistently improved and professionalised. Excellent cluster management is becoming more and more important for sustainable and effective cluster development. The more professional cluster management can be, and the more it supports the cluster actors involved, the faster innovations can be implemented effectively through cluster initiatives.

One key step towards professionalising cluster management in Baden-Württemberg was the introduction of the trademarked quality label “Cluster-Exzellenz Baden-Württemberg” (Baden-Württemberg cluster excellence) by the former Ministry of Finance and Economics Baden-Württemberg in July of 2012. This quality label is based on the quality criteria of the European GOLD Label of the European Cluster Excellence Initiative (ECEI) supported by the European Commission. The quality criteria have been adjusted to and developed based on the unique requirements of cluster initiatives and state-wide networks in Baden-Württemberg, with a focus on internationalisation and long-term financing. The “Baden-Württemberg cluster excellence” label serves as an independent and voluntary verification of excellent cluster management in Baden-Württemberg.

The “Baden-Württemberg cluster excellence” quality label, initially issued for two and later three years, is awarded

by the Ministry of Economic Affairs, Labour and Housing Baden-Württemberg based on recommendations from an independent committee. In addition to the quality criteria, implementation of the committee's recommendations is reviewed during the re-certification process. The quality label helps increase performance among cluster initiatives and state-wide networks, since it serves as an evaluation while also illuminating potential areas of improvement and targeted measures to carry these out. It delivers incentives for cluster and network management to take up quality standards and review their own activities, management services, etc. In addition, it is also a good instrument for acquiring new cluster partners.

The quality label is also recognised on the European level, so cluster initiatives and state-wide networks that successfully complete the certification process also receive the "Cluster Management Excellence Label GOLD – Proven for Cluster Excellence" from the European Cluster Excellence Initiative.

Currently, the following cluster initiatives and state-wide networks in Baden-Württemberg have been awarded the quality label

"Baden-Württemberg cluster excellence"

- AFBW – Allianz faserbasierte Werkstoffe Baden-Württemberg e. V.
- automotive bw
- BioLAGO e. V. – Das Gesundheitsnetzwerk
- Southwest electromobility cluster
- microTec Südwest e. V.
- Photonics BW e. V. – Innovation cluster for optical technologies in Baden-Württemberg
- TechnologyMountains e. V.
- Virtual Dimension Centre Fellbach w. V.

Further developing clusters – Baden-Württemberg Cluster Agency

Baden-Württemberg has developed a large number of cluster initiatives in recent years. The cluster policy is focused on continuing to support and promote the development of these cluster initiatives and state networks, not least in view of helping key actors in these innovations become established at the interface between economics, research and policy.

In the future, cluster initiatives and state-wide networks will help promote key economic and political goals such as internationalisation of small and mid-sized companies, technology transfer between research and the economy or the initiation of cross-sector and cross-industry innovations.

To support and promote the development of cluster initiatives, the ClusterAgentur Baden-Württemberg (CA BW) was established in 2014 with the help of funds from the European Fund for Regional Development (EFRE) and state funds. The ClusterAgentur Baden-Württemberg is a service provider for the cluster initiatives, state-wide networks and cluster policy in Baden-Württemberg. The ClusterAgentur Baden-Württemberg represents a close collaboration between members of VDI/VDE Innovation + Technik GmbH, Steinbeis 2i GmbH and Baden-Württemberg International GmbH. It also involves close cooperation with different state agencies within Baden-Württemberg.

Specifically, the ClusterAgentur Baden-Württemberg supports the management of cluster initiatives and state-wide networks in Baden-Württemberg in strategic development, requirements analysis, and developing new services for their members.

The ClusterAgentur Baden-Württemberg also works to train cluster and network managers, so they can offer targeted, needs-based services to their members in the future in line with the strategic focus of the cluster initiatives. In addition, the ClusterAgentur Baden-Württemberg supports the Ministry of Economic Affairs, Labour and Housing Baden-Württemberg in implementing the state's cluster policy goals.

The ClusterAgentur Baden-Württemberg also increasingly supports development agencies in their role as drivers behind the implementation of regional innovation processes and networking activities. Frequently, they may lack an awareness of how to design or implement such processes or may not have the necessary resources. This is exactly where support from the Baden-Württemberg Cluster Agency comes into play.

The activities of the ClusterAgentur Baden-Württemberg are focused primarily on the following key areas:

- Professionalising cluster management

As a partner in cluster and network management, the ClusterAgentur Baden-Württemberg helps promote further professionalisation. It offers not only training sessions and workshops, but also individual advising meetings for cluster and network management. Together, it helps promote topics like strategic development, service offerings, and measuring success and performance.



- **Cross-clustering**

Cross-clustering is an instrument that can help cluster initiatives and state-wide networks to bring together companies, colleges, and research institutions from different industries and networks in line with their goals and requirements, encouraging cross-sector cooperation. These new types of cooperation between cluster initiatives in different sectors and industries can help initiate fundamental (sector-altering) innovations. The ClusterAgentur Baden-Württemberg supports cluster management in tapping into these instruments for cluster initiatives and state-wide networks, as well as for their members.

- **Internationalisation**

In the future, developing international relationships and networks will become important in addition to regional networking between cluster actors. The ClusterAgentur Baden-Württemberg supports and aids cluster initiatives in the complex topic of internationalisation, helping manage the unique challenges facing each cluster initiative.

- **Instruments for regional technological and innovation development**

More and more, regional development agencies are taking on the challenge of initiating and managing regional innovation and networking processes. Cluster initiatives and networks act as key instruments in regional economic development. The ClusterAgentur Baden-Württemberg supports them in developing suitable instruments and in process moderation.

The ClusterAgentur Baden-Württemberg also develops further services beyond these four key areas to support cluster initiatives and regional development agencies in the state, who focus on needs surrounding cluster and network management.

State funding programmes to support cluster initiatives and networks

In addition to cluster and network development instruments, the Ministry of Economic Affairs, Labour and Housing Baden-Württemberg also offers programmes that financially support cluster and network management along with other innovation intermediaries. During the early years, financial support was focused mainly on establishing and developing cluster management structures in regional cluster initiatives and state-wide networks. During the previous EFRE grant period (2007-2013), a total of roughly 7 million euro from EFRE and state funds were used for this purpose. Against the backdrop of the comprehensive existing cluster structures, which also cover technological target areas of the state policy, the discussion between cluster policy partners in the cluster dialogue resulted in a paradigm shift in funding. As a result, over the last few years financial support has gone primarily to promoting innovative, model projects and measures by cluster organisations and regional networking activities.

VwV EFRE - Cluster and Innovation Platforms – CLIP 2014-2020

The Ministry of Economic Affairs, Labour and Housing Baden-Württemberg primarily funds development and testing of innovative projects and services by regional cluster initiatives and innovation platforms, in order to provide targeted support to cluster management. Funding is based on the Verwaltungsvorschrift (administrative regulation - VwV) EFRE Cluster and Innovation Platforms – CLIP 2014-2020 in conjunction with the specific call. A total of 2 million euro are available for the current EFRE funding period.

The goal of this funding is to intensify collaboration between companies, universities, research institutions, and other actors in clusters and networks in Baden-Württemberg's speciality fields. Collaboration within and between initiatives should be intensified, and new actors - in particular small and mid-sized companies - should be activated and integrated into cluster initiatives. Goals include developing and spreading more new technologies while improving innovative capacity.

Cluster initiatives and state-wide networks should be developed further through the funding, with a focus on quality, especially in terms of internationalisation and expanding cross-cluster cooperation (inter-, cross-, meta-clusters).

Because of this, the Ministry of Economic Affairs, Labour and Housing Baden-Württemberg also promotes “Innovative cluster-based projects of international scale in the Baltic Sea Region (BSR region)” as part of the CLIP call. This promotion focuses on finding innovative ways to further internationalise cluster initiatives. Funding is coordinated with Baltic Sea region countries (called the BSR in the following). This allows projects to be funded simultaneously with moneys from CLIP funding and the BSR Innovation Express Call.

Innovative projects and work programmes should be developed and implemented alongside partner initiatives from the BSR region. This allows the creation of new projects in cross-cluster cooperation (meta-, cross-, inter-clustering) on an international level, which helps internationalise Baden-Württemberg clusters.

To receive funding, projects must be assessed and selected by both the Ministry of Economic Affairs, Labour and Housing Baden-Württemberg and the Innovation Express Call jury. Synchronising calls and making joint selection decisions can help ensure that project financing is provided by all participating project partners. The following three projects were selected:

- MetallDIALOG (WFG Heilbronn region) - Partner Danish Materials Network - Project: “Materials Excellence - Strategy, Efficiency and Expansion for Danish and German plastics and metal working companies”
- BioRegioSTERN - Partner Danish Welfare Tech Cluster - Project: “ILDAcare - Intelligent Logistics, Digitalisation & Automatised Workflows f. the Homecare & Nursing homes sector”
- VDC Fellbach - Partner The Visual Sweden Initiative Centre (Visual Sweden) - Project: “Baltic Virtual - Promoting Virtual Engineering for SME in the Baltic Sea Region”

The long-term goal of CLIP funding is to further professionalise cluster initiatives and state-wide networks and their services to develop and promote sustainable, resilient structures.

Information on the grant programme is available at: www.efre-bw.de and https://www.efre-bw.de/iglinter/net/opencms/de/Microsite_EFRE/Foerderung/Clusterfoerderung/

“Internationalising clusters and networks” grant programme

The Ministry of Economic Affairs, Labour and Housing Baden-Württemberg has been working with Baden-Württemberg International GmbH (bw-i) to offer a grant programme supporting the internationalisation of clusters and networks from Baden-Württemberg since 2009. This grant programme is still in high demand and is continuously adapted to the needs of the cluster initiatives. Currently, the following areas of support are available for internationalising clusters:

- Developing internationalisation strategies
- Participating in international programmes for cluster and network managers
- Participating in international trade fairs
- Cluster expert travel abroad

Further information on the “Internationalising clusters and networks” grant programme is available at: www.bw-i.de/unternehmen-cluster/cluster-und-netz-werke.html

Activating the regional potential for innovation: ProRegioINNO

In order to avoid the disadvantages small and mid-sized companies suffer due to their size, the Ministry of Economic Affairs, Labour and Housing Baden-Württemberg provides targeted investment in regional innovation infrastructures through the new ProRegioINNO program. In addition, this programme is designed to help increase strategic networking between existing innovation services in the region, in order to create added value for the innovative capacity of the state. The new structural policy programme is composed of four components designed to reinforce regional innovative capacity:

1. Promoting regional innovation management
2. Promoting regional innovation structures in urban areas
3. Regional business owner forums
4. New consulting services by the ClusterAgentur Baden-Württemberg for development agencies



Promoting regional innovation management, in particular, offers interesting opportunities to cluster initiatives. Joint projects can help further boost independent initiative among regional actors. In this way, cluster initiatives can be used to test out and consolidate the joint implementation of projects with other innovation actors and regions. Up to 200,000 euro are available to implement the projects; with a funding rate of 50 %, this corresponds to project budgets of 400,000 euro.

Further information on the funding programmes are available at: <https://www.clusterportal-bw.de/aktuelles/aktuelle-mitteilungen/mitteilungen-detailseite/news/foerderung-regionales-innovationsmanagement-in-baden-wuerttemberg/>



Cluster initiatives in Baden-Württemberg

international comparison

Cluster initiatives and state-wide networks in Baden-Württemberg differ in many ways. The sector and industry structures in which the cluster actors work have a key influence, as do regional economic structures. The following chapters will compare the cluster initiatives and state-wide networks listed in the Cluster Atlas with a portfolio of high-performing initiatives based on select indicators, in order to illuminate their similarities and differences:

- Cluster initiatives and state-wide networks from all over Germany (179 data sets),
- Cluster initiatives and state-wide networks from all over Europe (940 data sets),
- Cluster initiatives and state-wide networks from all over Europe with high performing management (223 data sets, ESCA Excellence Portfolio).

We would like to thank the European Secretariat for Cluster Analysis (ESCA) for providing data for the comparative portfolio. The Secretariat has established standards for comparing over 1,000 cluster initiatives from all over Europe. The networks listed in the ESCA Excellence Portfolio have cluster and network management that deliver above average performance.

The following indicators, present in all four comparative groups, were taken into consideration:

- Age of the cluster initiatives and state-wide networks
- Size and composition of the cluster and network actors
- Personnel capacities for cluster and network management
- Financing

Because we have continuously updated the Cluster Atlas over past years, the 2018 Cluster Atlas now allows us to trace developments between 2014 and 2018 and include them in the analysis.

Age of the cluster initiatives and state-wide networks

Typically, the age of a cluster initiative or state-wide network is an indicator of its performance capabilities. We can assume that older, more established cluster and network management programmes perform better than younger ones, as they have proven they can secure financing over a longer period and establish sustainable structures. The oldest cluster initiative listed in the Baden-Württemberg Cluster Atlas was founded in 1974, and the youngest in 2017. The average age of cluster initiatives and state-wide networks in Baden-Württemberg (the median, to be exact) is ten years.

Image 3 shows a comparison of the ages of cluster initiatives and state-wide networks in Baden-Württemberg. The percentage of established cluster initiatives that have existed for more than four years is approx. 90 % for portfolios from Germany, the ESCA Excellence Portfolio, and Baden-Württemberg, with all of these being at roughly the same level. Four years ago, the percentage of established cluster initiatives and state-wide networks in Baden-Württemberg (73.9 %) was lower than the percentage of established cluster initiatives throughout Germany (85.6 %) and lower than the figure for the ESCA Excellence Portfolio (89.4 %). Notably, there are significant deviations from the overall European figures. The percentage of established cluster management structures here has even dropped

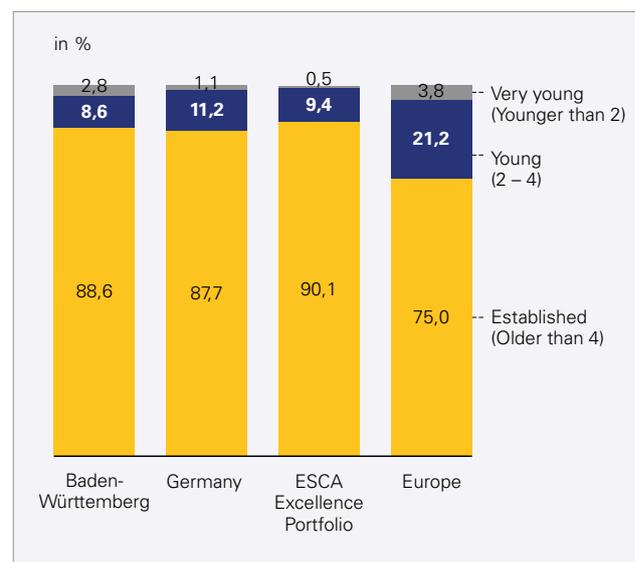


Image 3: Comparison of ages of cluster initiatives in Baden-Württemberg

slightly, and today is just 75 % (previously 84.2 %). This is primarily due to the fact that a large number of new cluster initiatives have been created in eastern Europe over the last two to three years.

In Baden-Württemberg as well, slightly more cluster initiatives were founded over the last few years than in 2014. Although there were very few cluster initiatives and state-wide networks in Baden-Württemberg younger than two years old the last time the Cluster Atlas was assembled, the percentage of such initiatives and networks today is 2.8 %. The rate of founding new cluster initiatives is even slightly higher than in all of Germany (1.1 %).

For Baden-Württemberg, the figures tell two important stories: First, they show that the cluster policy in Baden-Württemberg is very sustainable. Cluster initiatives and state-wide networks typically remain in existence for multiple years and are not short-term phenomena. This allows them to build experience and expertise. Both of these are key to providing optimal support to their members.

At the same time, new initiatives are still being founded in the regions, creating dynamism, even though there are currently no funding programmes focused on the development and management of cluster initiatives. The innovation actors in the regions have recognised the added value offered by cluster initiatives and actively support their development, even without major state or federal funding programmes. We would explicitly like to emphasise this regional commitment.

Size and composition

The Baden-Württemberg Cluster Database lists roughly 110 cluster initiatives and state-wide networks and state agencies. Due to the wide deviations in their numbers of members, the median value is used to provide a picture of the average number of members in cluster initiatives and state-wide networks. For Baden-Württemberg, this figure is 68 members per cluster initiative or state-wide network. This makes such bodies somewhat larger than in Europe as a whole (61 members), although they do not equal the member figures for cluster initiatives throughout Germany (79 members). The difference from the ESCA Excellence Portfolio is even more clear. Cluster initiatives and state-wide networks listed here typically have around 110 members.

Image 4 also shows the development in member figures over the last four years. All portfolios saw significant increases in their number of members in this period. It is clear that more and more companies are recognising the value of engaging with cluster initiatives, and are choosing to do so. The increase in the median value of the ESCA Excellence Portfolio (+25) is particularly significant.

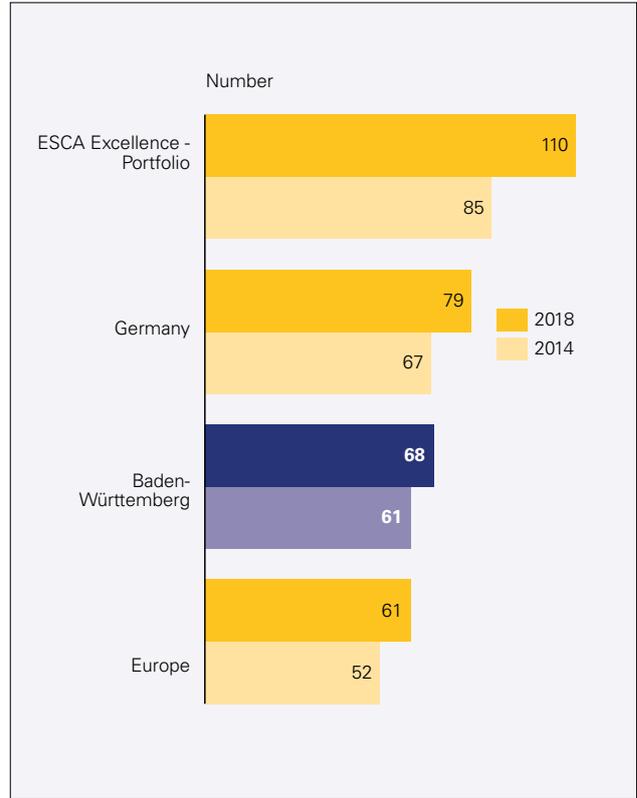


Image 4: The median number of members per cluster initiative / state-wide network and their change

The figures show a slight trend towards larger (see image 4) and more established cluster initiatives and state-wide networks (see image 3). However, this does not mean that cluster initiatives and state-wide networks in Baden-Württemberg are too small and now require continuous growth. Frequently, companies in Baden-Württemberg are highly specialised and concentrated in small, yet very powerful economic regions. Because of this, cluster initiatives in the state are highly concentrated from both thematic and regional standpoints, and serve smaller target audiences. In addition, the literature provides no reliable data or studies to prove that it is necessarily an advantage for cluster initiatives to have a greater number of members.

However, it does verify that initiatives must have a critical mass of members in order to involve a representative number of actors in a wide variety of activities and bring together the right actors for cooperations or R&D activities. The catalogue of criteria for the GOLD Label of the European Cluster Excellence Initiative (ECEI) and the “Baden-Württemberg Cluster Excellence” quality label consider a minimum of 40 actors to be a good critical mass to ensure a cluster initiative remains vital.

Image 5 shows that many cluster initiatives and state-wide networks have already reached this figure. To avoid distortions in the data, the two types of networks are evaluated separately here. Thanks to the large areas they

cover, state-wide networks can very quickly reach a critical mass of actors, while regional cluster initiatives primarily draw their potential members from a regional area.

In this year's survey, 73 % of regional cluster initiatives have reached the threshold value of over 40 members, fulfilling the standard for the "Baden-Württemberg Cluster Excellence" quality label. In comparison to the last survey in 2014 (65.4 %), the percentage has grown significantly. However, approx. 14 % of the cluster initiatives still have fewer than 25 members. In light of this data, the question is whether it is possible for them to reach the critical mass of members allowing them to generate added value, or whether more sustainable future prospects can be created through new cooperations, expanding their service area, or even combining initiatives.

In state-wide networks as well, the number of initiatives with over 40 members is relatively high at 77.3 %. 18.2 % do have over 25 members, and just 4.5 % have fewer than 25.

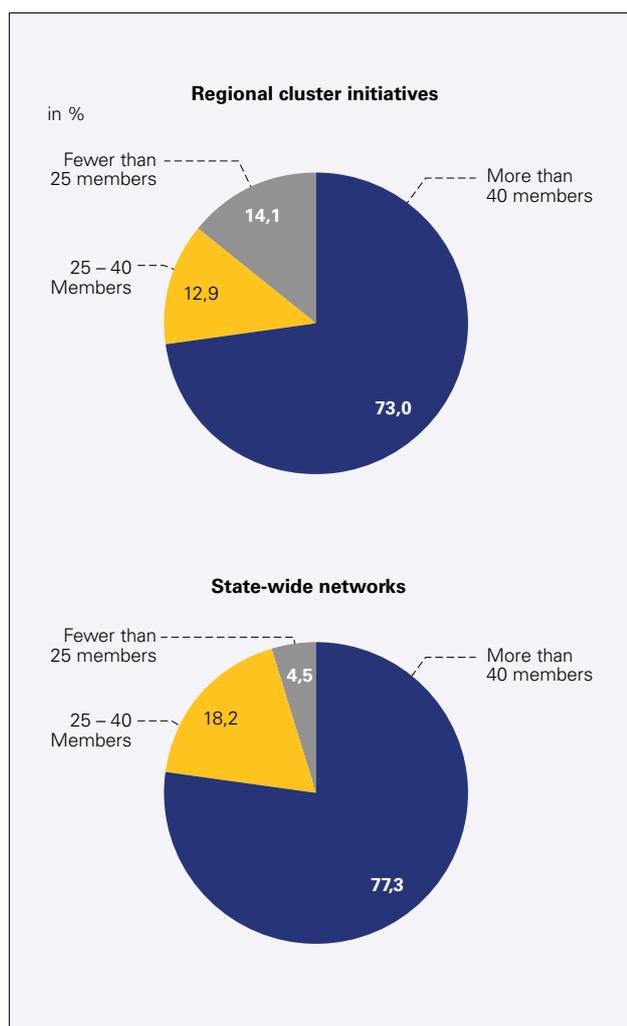


Image 5: Size distribution of state-wide networks (top) and regional cluster initiatives (bottom)

However, it is not only a cluster initiative's total number of members that determines its effectiveness, but their composition as well. The goal of cluster policy in Baden-Württemberg, Germany, and throughout Europe is to fund small and mid-sized companies. Because of this, the membership structure should include a higher percentage of such companies. Image 6 shows that Baden-Württemberg is positioned very well in this respect, clearly standing out in comparison to the other portfolios. 75.9 % of the members of cluster initiatives and state-wide networks in Baden-Württemberg are small and mid-sized companies. This percentage is significantly higher than in Germany (60.1 %), Europe (64.3 %) and even in comparison to the ESCA Excellence Portfolio (67 %).

One positive finding is that the percentage of small and mid-sized companies in cluster initiatives and state-wide networks in Baden-Württemberg has increased significantly once again over the past few years (+11.3 %), as image 7 shows. The percentage of small and mid-sized companies in the other portfolios is, in contrast, clearly decreasing. In contrast, we see a sharp increase in the category "Other". This category covers regional innovation actors such as Chambers of Industry and Commerce (IHK), Trade Chambers (HWK) or regional development agencies. These developments should be monitored, in particular in light of the increasing integration of cluster policies with regional economic and innovation policies.

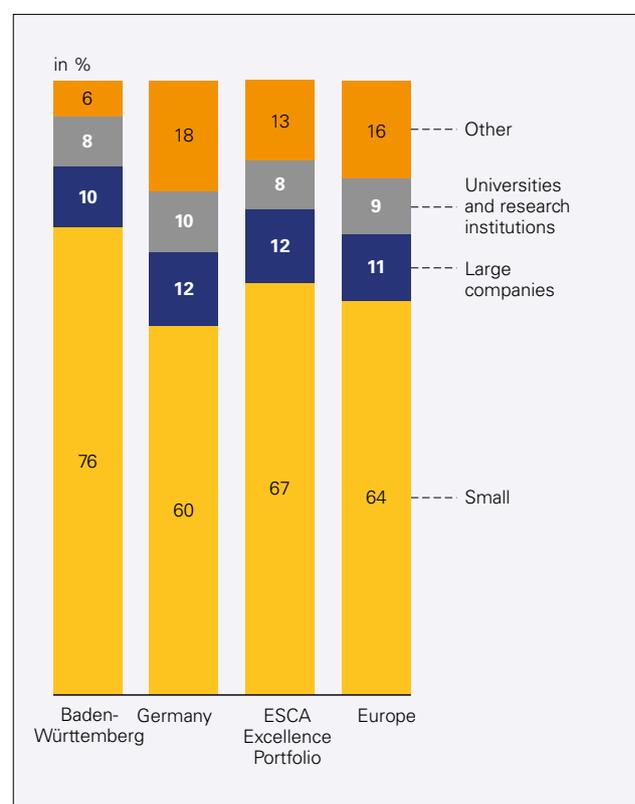


Image 6: Average composition of actors in cluster initiatives and state-wide networks, comparison

In conclusion, we can state that cluster initiatives and state-wide networks in Baden-Württemberg on average have fewer members than those in Germany or Europe and seem to grow somewhat more slowly on average (see image 4). They do, however, focus more clearly on the actual target audience of small and mid-sized companies. The growth in cluster initiatives and state-wide networks in Baden-Württemberg is primarily due to an increase in companies as members (see image 7). This confirms that the Baden-Württemberg cluster policy is pursuing its goal of supporting the innovation activities of small and mid-sized companies through the work of cluster initiatives.

Personnel capacities for cluster and network management

The efficiency of cluster initiatives and state-wide networks depends to a large extent on the personnel capacities available for cluster and network management 1. If they have sufficient personnel capacities, management can provide needs-based and professional services and

added value for cluster actors 2. Image 8 shows an interesting result for Baden-Württemberg. Roughly 1/3 of cluster initiatives and state-wide networks have over two full time equivalent (FTE) personnel. This figure is significantly higher in Germany (60.3 %) and Europe (59.6 %). The percentage of cluster initiatives and state-wide networks with over two FTEs is highest in the ESCA Excellence Portfolio (89.7 %).

The percentage of cluster initiatives with approx. one FTE is relatively high at 41.8 %. In Germany and Europe, this figure is just 15.1 % or 17.1 % of cluster initiatives surveyed.

Available personnel capacities reflect the sizes of cluster initiatives and state-wide networks in Baden-Württemberg. It is clear that Baden-Württemberg has a large number of small cluster initiatives with just one FTE. The challenge for cluster management, therefore, is more in focusing on specific topics and using available resources in a targeted way.

The developments in personnel resources used for cluster management are also interesting. These appear to be dropping slightly in Baden-Württemberg and Germany.

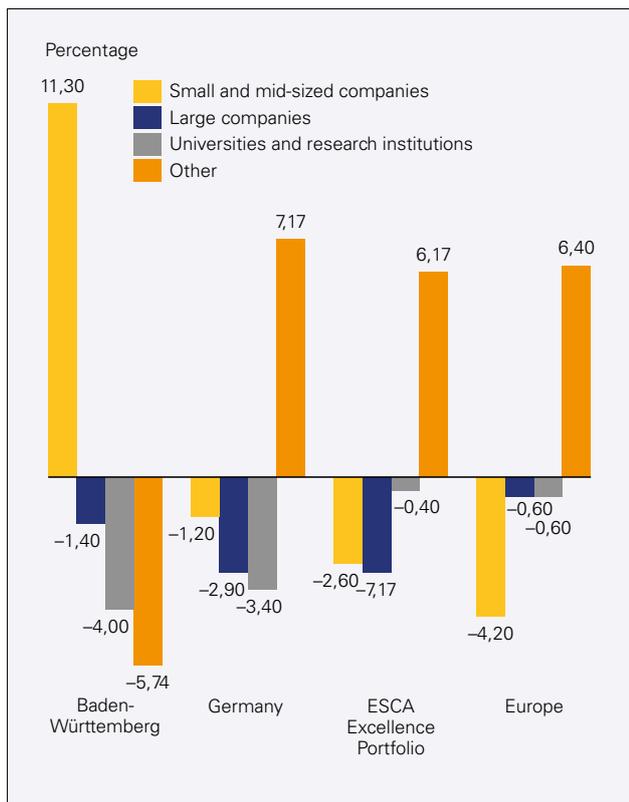


Image 7: Development of the composition of actors in cluster initiatives and state-wide networks from 2015-2018 (change in %)

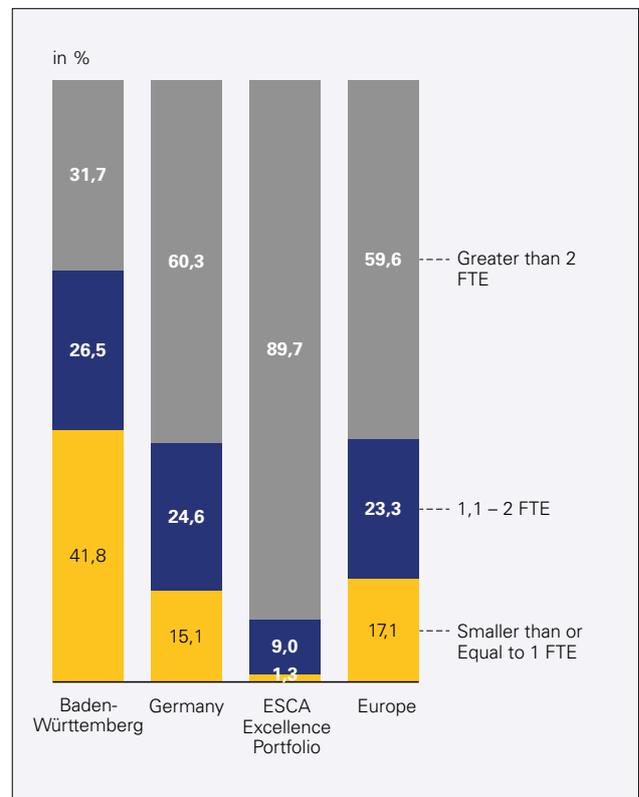


Image 8: Comparison of personnel capacities in cluster and network management

1 Meier to Köcker, Kergel, Ziegler, Nerger (2018), Cluster Management Excellence in Europe, doi:10.13140/RG.2.2.16257.35683, Berlin, www.cluster-analysis.org.
 2 Kergel, Meier zu Köcker, Nerger: New Approaches to Improve the Performance of Cluster Management Organisations in Europe, Danish Ministry of Science, Technology and Innovation, Copenhagen/Berlin, 2014, <http://www.iit-berlin.de/de/publikationen/new-approaches-to-improve-the-performance-of-cluster-management-organisations-in-europe>.

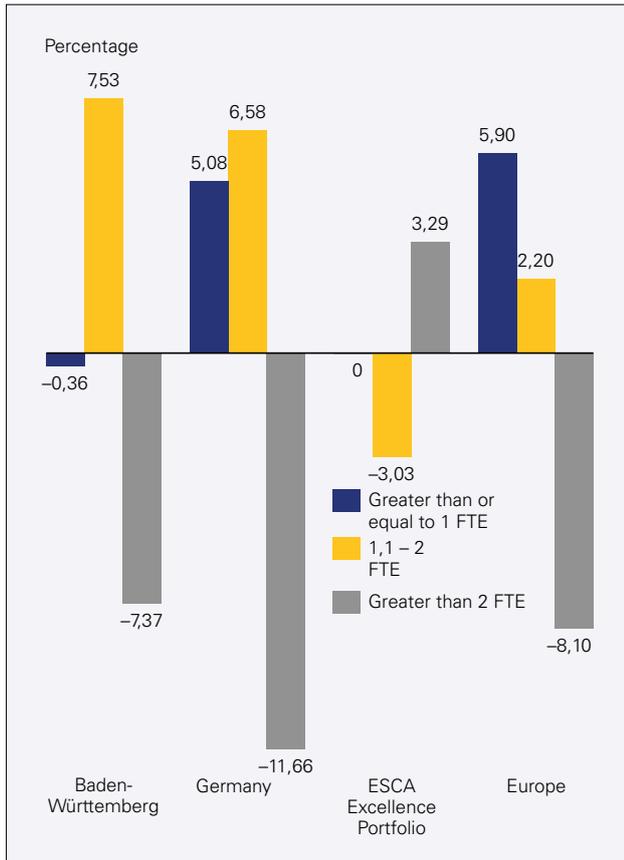


Image 9: Change in personnel capacities for cluster and network management from 2014-2018

As image 9 shows, the percentage of cluster initiatives and state-wide networks with more than two FTEs has dropped. The ESCA Excellence Portfolio is the only exception. Regarding the developments in Baden-Württemberg, a drop of 7.3 % is not quite as negative as in Europe (-8.10 %) or Germany (-11.6 %).

There may be many different reasons for these developments, such as the phasing out of large grant programmes such as the Spitzenclusterwettbewerb. In addition, there are few funding programmes providing basic funding for cluster and network management, making it more difficult to build up personnel capacities. Furthermore, funding for cluster initiatives and state-wide networks is always heavily project-focused. It is possible that employees may not work directly for the cluster initiatives themselves, for only for specific cluster-based projects.

Financing

Another interesting aspect is the percentage of public and private financing for cluster and network management. Image 10 shows that cluster initiatives and state-wide networks in Baden-Württemberg depend much less on public funding than cluster initiatives in Germany or Europe. The average value in Baden-Württemberg is approx. 33 %,

with comparative portfolios in Germany and Europe showing higher percentages of state funding (approx. 45 %). Cluster initiatives that are part of the ESCA Excellence Portfolio receive the most funding, with a funding rate of over 50 %.

Cluster initiatives in Baden-Württemberg are primarily financed by collecting member contributions and offering paid services. Cluster initiatives and state-wide networks in Baden-Württemberg have succeeded in creating service companies seen as clearly beneficial. They are willing to pay a contribution for such services.

These developments have even accelerated significantly over the past few years, as image 11 shows. The percentage of member contributions for financing cluster initiatives and state-wide networks in Baden-Württemberg has increased (+3 %). None of the other portfolios saw similar growth, and the cluster initiatives in the ESCA Excellence Portfolio even show a large drop in this respect. The percentage of financing from member contributions has dropped by 6.1 %. At the same time, the percentage of state funds has increased by 4.1 %.

The high level of financial commitment by companies in Baden-Württemberg to support cluster initiatives shows that the goal of the cluster policy to primarily implement corporate-driven cluster initiatives is promising. Company support is clear not only from member contributions (approx. 33.0 %), but also includes a high percentage of financing from paid services and sponsorships (approx. 34.2 %). This represents the highest level among all of

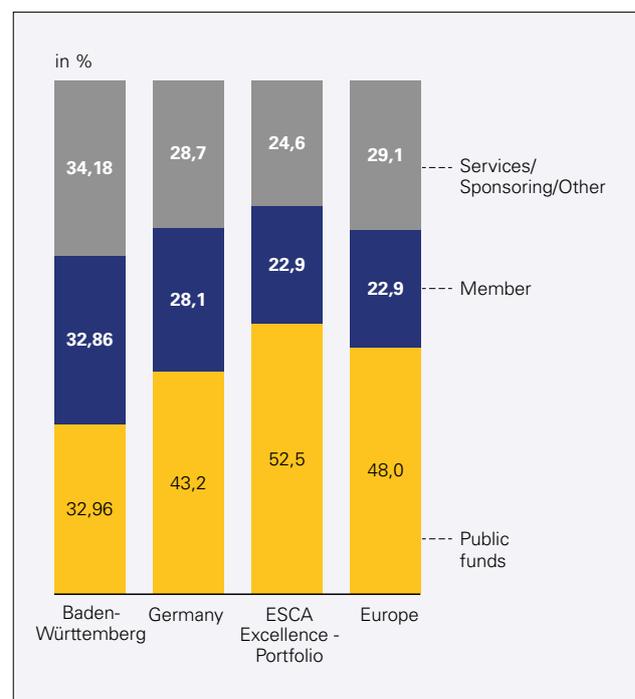


Image 10: Average financing structure of cluster initiatives and state-wide networks, comparison

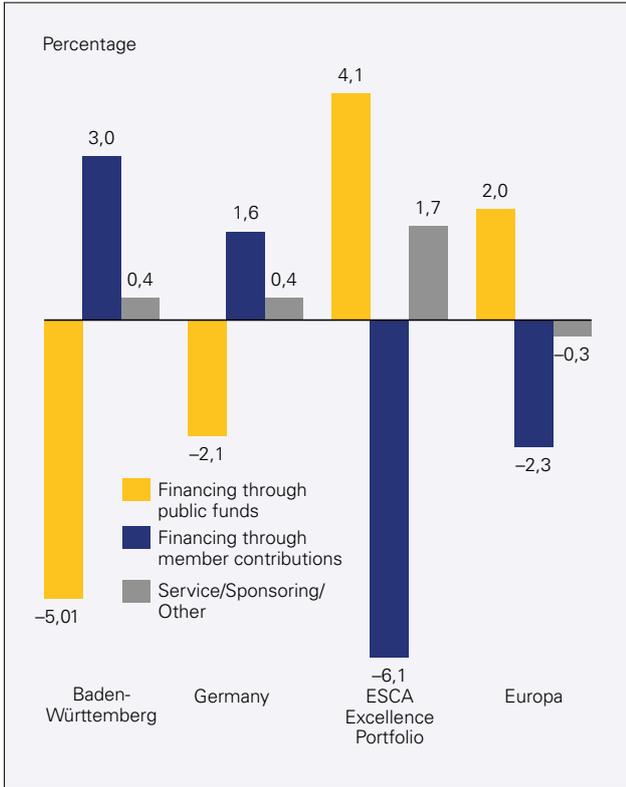


Image 11: Development of the financing structure of cluster initiatives and state-wide networks between 2014-2018

the portfolios. This is a sign that cluster initiatives and state-wide networks are succeeding in offering companies custom-tailored, unique services through the support of the ClusterAgentur Baden-Württemberg.

In summary, it is clear that cluster initiatives and state-wide networks in Baden-Württemberg in particular are becoming better at getting companies interested in engaging in cluster initiatives, and that the work of managing clusters generates added value. Cluster initiatives are not simply an economic policy measure promoted and initiated by the state; instead, they are the result of concrete collaboration between political, economic, and research actors.

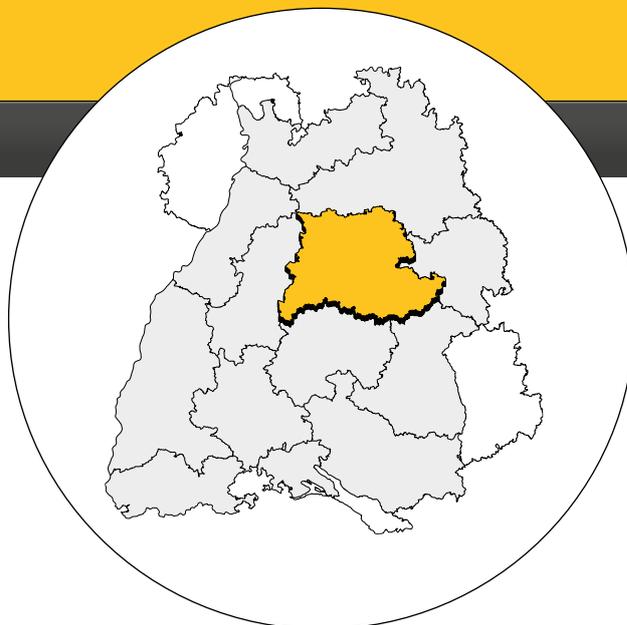




01



Stuttgart



The region

The Stuttgart region is the geographical and economic centre of Baden-Württemberg and covers 3,654 km². Numerous leading global companies are located here, making the region a leading engineering location worldwide with the highest level of innovative capacity in comparison to Baden-Württemberg's other regions.

Economic centre

The region includes the state capital of Stuttgart and the surrounding districts of Böblingen, Esslingen, Göppingen, Ludwigsburg and the Rems-Murr district. Approx. 2,758,000 residents live in the region. Over a quarter of the state's employees work in the region.

The economy of the Stuttgart region is shaped slightly less by production and more by the service sector than the state of Baden-Württemberg itself. This is partially because the number of corporate service providers here is higher than the state average.

The region enjoys this strong, internationally competitive position because of the close proximity between research and development expertise and the production of complex system commodities.

The key clusters of automotive, mechanical engineering and the creative economy have an almost unmatched level of vertical integration, partially because they are closely connected to similar clusters in adjacent regions.

Key industries (based on the number of employees subject to social insurance contributions, without trade, construction or the public sector) include:

- Vehicle construction with suppliers,
- The metalworking industry with mechanical engineering and manufacturing metal products and
- Information services.

In comparison to other regions of Baden-Württemberg, innovative capacity plays a key role here.

A large number of global leading companies and subsidiaries are located here, offering extensive research and development capacities. While Stuttgart offers the highest level of innovation of any region, the level of innovative dynamism is roughly equivalent to the state average.

Innovation index*

Innovation index	50,3	State 38,4
Level index	50,5	State 35,2
Dynamic index	49,8	State 47,8

Employees in the individual sectors**

Production industry	33,1 %	State 35,7 %
Services	66,6 %	State 63,8 %

R&D personnel percentage***

2013	3,6 %	State 2,1 %
2015	3,8 %	State 2,3 %

* Source: Statistical Office of Baden-Württemberg, as of 2016

** Source: Statistical Office of Baden-Württemberg, as of 06/2017

*** Source: Statistical Office of Baden-Württemberg, FTE R&D personnel in relation to FTE employed persons, as of 08/2016

Contact person

Wirtschaftsförderung Region Stuttgart GmbH
Stephanie Fleischmann
Friedrichstraße 10
70174 Stuttgart

Phone: +49 711 22835-26

E-mail: stephanie.fleischmann@region-stuttgart.de

WWW: wrs.region-stuttgart.de

Clusters and cluster initiatives in the region



Automotive cluster

The automotive cluster plays a key role in Stuttgart. With its large manufacturers and globally ranked system suppliers, and a large number of highly competitive mid-sized suppliers, the region offers almost the entire supply chain. The Stuttgart region's automotive cluster impacts large portions of the state of Baden-Württemberg.

Clusterinitiative Automotive Region Stuttgart - CARS

CARS helps strengthen the Stuttgart region's position as a key global vehicle construction location and provider of new technologies, promoting mobility-related services.

Stuttgart Region Automotive Cluster Initiative c/o Wirtschaftsförderung Region Stuttgart GmbH

Friedrichstraße 10
70174 Stuttgart
wrs.region-stuttgart.de/
uploads/media/publikationen_
FlyerCars_web.pdf

Christoph Gelzer
+49 711 22835-43
christoph.gelzer@region-stuttgart.de



Biotechnology cluster

The excellent scientific environment offered by the three universities, five colleges with biotechnology focal areas, and research activities by renowned international research institutions in the biotechnology cluster form the strong foundation required to carry out good basic research on biotechnological applications. Thanks to this outstanding scientific infrastructure, the BioRegion is one of the best in Germany. The potential for growth here is reflected in the increasing number of biotech companies located in the region. In addition, collaboration with other innovative industries like medical technology and automation is intensifying.

BioRegio STERN Management GmbH

BioRegio STERN Management GmbH is a central driver of expertise and advising, and a key contact point for start-ups and companies in the life sciences field in the Stuttgart and Neckar-Alb regions, including the cities of Tübingen and Reutlingen.

BioRegio STERN Management GmbH

Friedrichstraße 10
70174 Stuttgart
www.bioregio-stern.de

Dr. Klaus Eichenberg
+49 711 870354-0
info@bioregio-stern.de

€ Financial sector cluster

After Frankfurt, Stuttgart is one of Germany's most important financial sector locations. In addition to the largest state bank and the L-Bank, which serve as the largest development bank, leading institutions from the insurance and building association sector are headquartered in the Stuttgart region. In addition, Germany's second largest stock exchange is located in Stuttgart, Europe's market leader in securitised derivatives. The quickly growing leasing market also occupies a strong market position in Stuttgart.

Stuttgart Financial – Vereinigung Baden-Württembergische Wertpapierbörse e. V.

Stuttgart Financial is a central player in bundling interests relevant to the financial region and increasing focus on financial industry issues in Baden-Württemberg for the good of its citizens and the economy.

Stuttgart Financial – Vereinigung Baden-Württembergische Wertpapierbörse e. V.

Börsenstraße 4
70174 Stuttgart
www.stuttgart-financial.de

Dr. Marc Mehlhorn
+49 711 222985-977
mehlhorn@stuttgart-financial.de

Healthcare cluster

Renowned research institutions and colleges, numerous clinics and many small and mid-sized companies characterise the healthcare cluster in the Stuttgart region. The cluster focuses on areas like regenerative medicine, telemedicine, orthopaedic technology, therapeutic product production, healthcare tourism, and numerous services.

Wirtschaftsförderung Region Stuttgart GmbH

Friedrichstraße 10
70174 Stuttgart
www.wrs.region-stuttgart.de

Stephanie Fleischmann
+49 711 22835-26
stephanie.fleischmann@region-stuttgart.de

Information technology / corporate software cluster

This cluster consists of a few large companies on the one hand, and a large number of small and mid-sized companies on the other. Because of this, it spans the entire range of the information technology field, while focusing specifically on the automotive and mechanical engineering sectors which are so key to the region due to the industries located there. Drivers of development originate primarily with younger, small and mid-sized IT companies. Companies are highly concentrated, in particular, in the area of open source software. Other relevant areas include virtual reality, telematics and mobile IT.

IT Region Stuttgart

The IT Region Stuttgart cluster initiative promotes networking among regional actors and improves awareness of the Stuttgart region as a digital location through PR work.

IT Region Stuttgart c/o Wirtschaftsförderung Region Stuttgart GmbH

Friedrichstraße 10
70174 Stuttgart
www.it.region-stuttgart.de

Hjalmar Hiemann
+49 711 22835-49
hjalmar.hiemann@region-stuttgart.de

Software-Zentrum Böblingen / Sindelfingen e. V.

The Software-Zentrum Böblingen offers its roughly 110 member companies a good space for cooperation in its approx. 12,000 square meters of office space in one of Europe's largest technology centres.

Software-Zentrum Böblingen / Sindelfingen e. V.

Otto-Lilienthal-Straße 36
71034 Böblingen
www.softwarezentrum.de

Hans-Ulrich Schmid
+49 7031 714-701
info@softwarezentrum.de

Virtual Dimension Center Fellbach e. V.

The Virtual Dimension Center (VDC) is a hub for German engineering, especially in the fields of VR, 3D simulations, 3D visualisation and product life cycle management.

Virtual Dimension Center Fellbach e. V.

Auberlenstraße 13
70736 Fellbach
www.vdc-fellbach.de

Dr.-Ing. Christoph Runde
+49 711 585309-0
info@vdc-fellbach.de

Creative economy cluster

Culture and the creative industry are a key sector in the Stuttgart region. With roughly 10,000 companies and revenues of approx. 6.6 billion euro, the region clearly plays a key role in the sector. Overall, the Stuttgart region is characterised by its large internal market and high number of industrial customers. This offers unique opportunities to the creative economy. Creative service providers in the area benefit from direct access to potential clients, and have been working closely for many years with traditional regional key industries like vehicle and machine engineering.

Animation Media Cluster Region Stuttgart (AMCRS)

This cluster initiative promotes the transfer of know-how and technology, while reinforcing interdisciplinary collaboration.

Animation Media Cluster Region Stuttgart (AMCRS)
c/o MFG Medien- und Filmgesellschaft
Baden-Württemberg mbH

Breitscheidstraße 4
70174 Stuttgart
www.amcrs.de

Stefanie Larson
+49 711 997999-0
contact@amcrs.de

Film Commission Region Stuttgart

The Film Commission Region Stuttgart serves as a cluster initiative for any concerns related to film production in the region.

Film Commission Region Stuttgart

Breitscheidstraße 4
70174 Stuttgart
www.film.region-stuttgart.de

Jens Gutfleisch
+49 711 22835-720
film@region-stuttgart.de

MedienInitiative Region Stuttgart

The MedienInitiative Region Stuttgart (Stuttgart regional media initiative) has been active since 1997. Serving as a networking tool and voice for the region, creative companies work actively to promote and develop the location.

MedienInitiative Region Stuttgart
c/o Wirtschaftsförderung Region Stuttgart GmbH

Friedrichstraße 10
70174 Stuttgart
www.kreativ.region-stuttgart.de

Bettina Klett
+49 711 22835-15
kreativ@region-stuttgart.de

Popbüro Region Stuttgart

The Popbüro Region Stuttgart (Stuttgart regional pop office) promotes the regional music economy at the intersection of youth, culture, and economics with a focus on advising, events, location marketing and networking.

Popbüro Region Stuttgart

Naststraße 11a
70376 Stuttgart
www.popbuero.de

Peter James
+49 711 489097-10
peter.james@region-stuttgart.de



Logistics and intralogistics cluster

The Stuttgart region logistics cluster is a well-established part of the economy and is integrated into global production processes. Logistics is an essential interdisciplinary function of modern economic systems, and many entirely new functions have been developed in recent years. Terms like supply chain management, eLogistics, Industry 4.0 or value added services describe the ways in which today's production processes are deeply saturated by logistical services.

Wirtschaftsförderung Region Stuttgart GmbH

Friedrichstraße 10
70174 Stuttgart
www.wrs.region-stuttgart.de

Stephanie Fleischmann
+49 711 22835-26
stephanie.fleischmann@region-stuttgart.de

Aerospace cluster

Aerospace has a long tradition in the Stuttgart region. Few locations offer such a dense and diverse network of large and mid-sized companies in the aerospace industry, universities, and research institutions as Stuttgart. 25 % of Baden-Württemberg's companies and 80 % of the research institutions in this industry are located here. Backnang and the surrounding region host a concentration of international satellite communication companies that is unique within Germany.

DeSK - Deutsches Zentrum für Satelliten-Kommunikation e. V.

Companies, research institutions and colleges have come together in DeSK to carry out projects, create synergies, and bring members together to deepen business relationships.

Deutsches Zentrum für Satelliten-Kommunikation e. V.

Schillerstraße 34
71522 Backnang
www.desk-sat.com

Dilara Betz
+49 7191 187-8314
Dilara.Betz@desk-sat.com

Production engineering cluster

Production engineering plays a major role in the Stuttgart region, and is characterised primarily by mid-sized companies. This cluster remains continuously competitive thanks to its innovative capacity. It covers a broad and diversified range of content, focusing on areas like tool manufacturing and automation technology. Alongside upstream manufacturers of machine components like drives, controllers, sensors or precision tools, this cluster counts roughly 800 directly associated companies. The production engineering cluster was identified by the European Cluster Observatory as the most important cluster in this technological area in Europe.

Kompetenznetzwerk für Industrielle Bauteil- und Oberflächenreinigung Leonberg e. V. (CEC)

Companies come together in the CEC network to exchange ideas processes, framework conditions and process requirements for optimised results in the industrial part cleaning process chain.

Kompetenznetzwerk für Industrielle Bauteil- und Oberflächenreinigung Leonberg e. V. (CEC)

Hertichstraße 57
71229 Leonberg
www.cec-leonberg.de

Steffen Haberzettl
+49 7152 330-8471
info@cec-leonberg.de

Maschinenbau Region Stuttgart

Initiatives to improve the innovative capacity of machine and systems engineering through networking and providing information on new technologies and business areas.

Maschinenbau Region Stuttgart c/o Wirtschaftsförderung Region Stuttgart GmbH

Friedrichstraße 10
70174 Stuttgart
www.maschinenbau.region-stuttgart.de

Oliver Reichert
+49 711 22835-872
oliver.reichert@region-stuttgart.de

Cluster Environmental technology cluster

The environmental technology cluster in the Stuttgart region is characterised by universities and research institutions, as well as both large global companies and start-ups. Many of the almost 300 companies operate their own research and development departments. In addition, there are numerous trade installation companies as well as architects, engineers, and consultants. Machine and systems engineering companies in the Stuttgart region have discovered this young sector and benefit as suppliers from the current boom.

bw-engineers GmbH

bw engineers is a partner network focused on accessing international markets and serves as an innovation platform for engineers.

bw-engineers GmbH

Boschstraße 10
73734 Esslingen
www.bw-engineers.com

Dr. Thomas Ertel
+49 711 9869 104-10
thomas.ertel@bw-engineers.com

Stuttgart Region Clean Tech cluster initiative

CI Clean Tech in the Stuttgart region supports local companies, initiates demonstration and funding projects, and connects policy, science, and economics through information services.

Cluster initiative Clean Tech of the Stuttgart c/o Wirtschaftsförderung Region Stuttgart GmbH

Friedrichstraße 10
70174 Stuttgart
www.zukunftsenergien.region-stuttgart.de

Dr. Taj Kanga
+49 711 22835-803
taj.kanga@region-stuttgart.de

Packaging technology cluster

One major local specialisation in production engineering in the Stuttgart region is packaging technology, which is primarily located in the Rems-Murr district and Esslingen area. It is characterised by its coverage of most of the supply chain, from suppliers to machine builders and specialised engineering service providers.

Packaging Excellence Region Stuttgart e. V. (PEC)

PEC e.V. serves as a neutral platform for exchanging experiences and creating synergies, forming an interface between the economy, science, and public institutions.

Packaging Excellence Region Stuttgart e. V.

Gewerbestraße 11
71332 Waiblingen
www.packaging-excellence.de

Jörg Fetzer
+49 7151 9814-861
info@packaging-excellence.de

Cluster-relevant services – Universities, research and transfer institutions

Institution	Fields
University of Stuttgart	<p>Departments: Architecture and urban planning, construction and environmental engineering, chemistry, energy, process and biotechnology, computer sciences, electrical engineering and information technology, aerospace and geodesics, design, production and vehicle technology, maths and physics, economic and social sciences, philosophy and history. Numerous research centres located at the university, such as</p> <ul style="list-style-type: none"> • Stuttgart Research Centre for Simulation Technology (SRC SimTech) • The High Performing Computer Centre (HLRS).
Hohenheim University	<p>Departments of natural sciences, agricultural sciences and economics and social sciences with a variety of research centres, such as bioeconomics.</p>
Esslingen University of Applied Sciences	<p>Departments of applied natural sciences, business, vehicle engineering, building, energy, and environment, computer sciences, graduate school, basic principles, mechanical engineering, mechatronics and electrical engineering, social work, healthcare and nursing, and industrial engineering. Transfer via institutes for applied research, such as the Institute for Sustainable Energy Technology and Mobility (INEM) and the Fraunhofer Application Centre KEIM (Competence Centre for Energy and Information Technology Mobility Interfaces). In addition, 23 Steinbeis transfer centres are housed within the Esslingen University of Applied Sciences.</p>
Hochschule für Wirtschaft und Umwelt Nürtingen-Geislingen	<p>Departments for business and international finance, agriculture, economics and management, landscape architecture, environmental and urban planning, and economics and law. Transfer via the Institute of Applied Research (IAF) and other specialised institutions, such as the Institute for the Automotive Industry (IFA).</p>
Stuttgart University of Applied Sciences - HFT Stuttgart	<p>Departments of architecture and design, civil engineering, building physics and economics, metrology, computer sciences, and mathematics. Transfer via the Institute for Applied Research (IAF) and competence centres, e.g. for sustainable energy technology (zafh.net) and Steinbeis Transfer Centre for Technical Consulting.</p>
Hochschule der Medien	<p>Departments of print and media, electronic media, information and communication. Transfer via the Institute for Applied Research (IAF) and transfer centres, e.g. the Institute for Business Intelligence (IBI).</p>
Baden-Württemberg Cooperative State University, Stuttgart	<p>Departments of economics, technology and social sciences, Steinbeis transfer centres and consulting centres.</p>

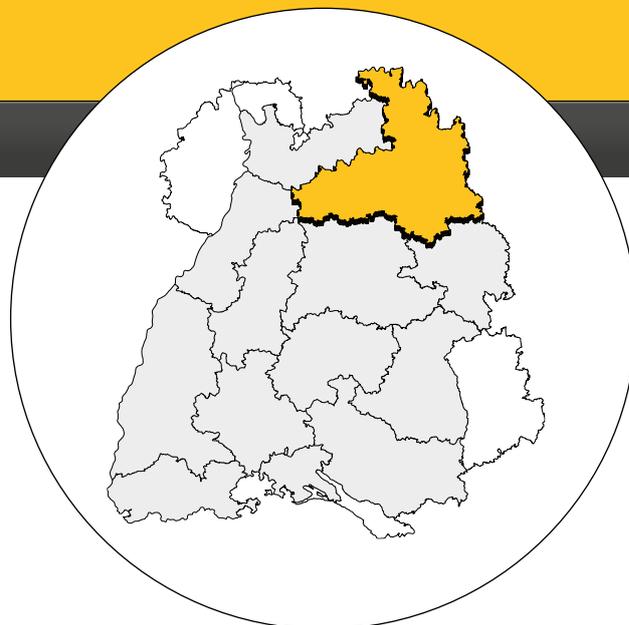
Institution	Fields
Filmakademie Baden-Württemberg	Programmes in film and media, production, film music and sound design, animation institute.
Stuttgart State Academy of Art and Design	Programmes in the areas of visual arts, architecture and design. Research institutions: Institute for book design and media development, institute for conservation sciences, Weissenhof institute.
Research and transfer institutions	<p>Fraunhofer Society institutions</p> <ul style="list-style-type: none"> • Fraunhofer Institute for Industrial Engineering IAO • Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB • Fraunhofer Institute for Manufacturing Engineering and Automation IPA • Fraunhofer Institute for Building Physics IBP • Fraunhofer Information Centre for Construction IRB • Fraunhofer Project Group for Lightweight Construction Processing Technology BTL <p>Max Planck Society Institutes</p> <ul style="list-style-type: none"> • Max Planck Institute for Intelligent Systems • Max Planck Institute for Solid State Research <p>Institutes of the German Aerospace Centre (DLR)</p> <ul style="list-style-type: none"> • DLR Institute for Construction and Structural Technology • DLR Institute for Concept Vehicles • DLR Institute for Technical Physics • DLR Institute for Technical Thermodynamics • DLR Institute for Combustion Technology • DLR Institute for Solar Research <p>Hahn-Schickard-Gesellschaft für angewandte Forschung e. V., Stuttgart</p> <p>German Institute of Textile Technology and Process Engineering (DITF)</p> <ul style="list-style-type: none"> • Institute for Textile Chemistry and Chemical Fibres ITCF) • Institute for Textile and Process Engineering (ITV) • Centre for Management Research (DITF-MR) <p>Other institutions</p> <ul style="list-style-type: none"> • ARENA2036 • Automotive Simulation Centre Stuttgart (ASCS) • Research Institute for Motorised Vehicles and Vehicle Motors Stuttgart (FKFS) • Herman Hollerith Centre (HHZ) • Hohenstein-Institut für Textilinnovation gGmbH (HIT) • Kompetenznetz Verfahrenstechnik Pro3 e. V. • Traffic and Transportation Sciences Institute Stuttgart (VWI) • Institute for Microelectronics Stuttgart (IMS CHIPS) • Centre for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW)



02



Heilbronn- Franken



The region

The Heilbronn-Franken region is located in the north-eastern part of Baden-Württemberg and is the largest region of the state, with a land mass of 4,765 km². It has roughly 887,260 residents. As part of the Stuttgart European urban region, it has the highest density of global market leading companies of any German region, based on number of residents.

Highest density of global market leaders

In comparison to Baden-Württemberg, the economic structure of the region is focused more strongly on the production sector. The service sector, in contrast, is smaller than average, while trade plays a key role here.

Industry in the region has developed over time and is broadly diversified. Because a high percentage of employees work in cluster companies, Heilbronn-Franken is a decidedly cluster-focused region.

Key industries (based on the number of employees subject to social insurance contributions, without trade, construction or the public sector) include:

- The metalworking industry with mechanical engineering and manufacturing metal products,
- Vehicle construction with suppliers,
- Electrical engineering,
- The food industry with production of nutritional products and feeds and
- Financial services.

In comparison to the other regions, innovative capacity here is in the middle range. Key locations for corporate and other non-university based research and development include Abstatt, Untergruppenbach, Hardthausen-Lampoldshausen and Wertheim.

In addition, internal corporate research and development activities are ongoing throughout the entire region. Furthermore, the five universities in the region engage in a broad spectrum of research and development activities.

Innovation index*

Innovation index	33,1	State 38,4
Level index	27,7	State 35,2
Dynamic index	49,3	State 47,8

Employees in the individual sectors**

Production industry	42,9 %	State 35,7 %
Services	56,5 %	State 63,8 %

R&D personnel percentage***

2013	1,9 %	State 2,1 %
2015	2,4 %	State 2,3 %

* Source: Statistical Office of Baden-Württemberg, as of 2016

** Source: Statistical Office of Baden-Württemberg, as of 06/2017

*** Source: Statistical Office of Baden-Württemberg, FTE R&D personnel in relation to FTE employed persons, as of 08/2016

Contact person

Wirtschaftsregion Heilbronn-Franken GmbH
Dr. Andreas Schumm
Weipertstraße 8-10
74076 Heilbronn

Phone: + 49 7131 7669-860
E-mail: a.schumm@heilbronn-franken.com
WWW: heilbronn-franken.com

Clusters and cluster initiatives in the region

Automotive cluster

The automotive industry has a long tradition in the city and district of Heilbronn. Over time, it has developed into a key industry in the area. Over 26,000 workers are employed directly by the automotive industry, a number that continues to grow. Thousands of other jobs with suppliers are directly related to the automotive industry. These include a range of engineering services, electronics manufacturers, part producers, software manufacturers, logistics companies and specialists in surface finishing. The region covers the entire automotive segment supply chain. Against this backdrop, the coming transformation in the automotive industry will be a challenge, although companies and scientific institutions do offer promising approaches.

AutomotiveDIALOG Wirtschaftsraum Heilbronn

AutomotiveDIALOG is the network for automotive suppliers in the Heilbronn economic region.

AutomotiveDIALOG c/o Wirtschaftsförderung Raum Heilbronn GmbH

Weipertstraße 8-10
74076 Heilbronn
www.automotive-region.de

Martin Schunkert
+49 7131 7669-705
automotive@wfgheilbronn.de

Plastics engineering and processing cluster

We can identify two cluster approaches from the plastics field within the Heilbronn-Franken region. Plastics companies in the Hohenlohe district are focused more on manufacturing and marketing end products, while companies in the Heilbronn region focus more in the areas of plastic processing, injection molding, and tool and mold construction. Customers for their foils, high tech synthetics and synthetic leathers come from the automotive, furnishings, fashion, and construction industries. They also offer full design and development services for the plastics industry.

KunststoffDIALOG Wirtschaftsraum Heilbronn

38 actors in the plastics industry from the Heilbronn economic region are part of KunststoffDIALOG. Members receive support in the areas of strategy, marketing, efficiency and innovation.

KunststoffDIALOG c/o Wirtschaftsförderung Raum Heilbronn GmbH

Weipertstraße 8-10
74076 Heilbronn
www.kunststoff-region.de

Daniela Fischer-Adelhelm
+49 7131 7669-702
adelhelm@wfgheilbronn.de

Laboratory glass cluster

The cornerstone for a new laboratory glass cluster was laid in Wertheim, in the far northern reaches of the Heilbronn-Franken region, approx. 70 years ago. Construction of a glass factory served as the starting point for an ongoing process of industrialisation. Most companies moved to the area from Thüringen. As plastic was increasingly substituted for glass in the 1970s, the glass sector underwent a wide-ranging structural shift. Segments were expanded as the industry diversified towards gift items and liquid handling. Cluster companies maintain an advantage in quality and precision, especially in classic laboratory glass production.

Wirtschaftsregion Heilbronn-Franken GmbH

Weipertstraße 8-10
74076 Heilbronn
www.heilbronn-franken.com

Dr. Andreas Schumm
+49 7131 7669-860
a.schumm@heilbronn-franken.com

Medical technology cluster

A medical technology cluster was created in the Heilbronn „Zukunftspark Wohlgelegen“ by bringing targeted companies to the area. The driving force behind the cluster is the Heilbronn Zukunftsfond „future fund“, which supports young companies from the medical and biotechnology industries and other sectors with equity investments. The city of Heilbronn and Heilbronn town settlement are creating a forward-thinking infrastructure around the Zukunftspark to facilitate urban production according to the most modern criteria. The cluster focuses on developing solutions for cardio-pulmonary medical products. MedTec companies work closely with local clinics, cooperate with Heilbronn university, and network with one another. In addition, they work to create interdisciplinary, cross-sector collaborations.

MedTecForum Heilbronn

The initiative supports improvements in the national and international exchange of experience and information to improve technology transfer and increase the innovative capacities of members.

MedTecForum Heilbronn c/o Office of Economic Development

Rathaus, Marktplatz 7
74072 Heilbronn
www.heilbronn.ihk.de/med-tecforum

Stefan Ernesti
+49 7131 56-2277
stefan.ernesti@heilbronn.de



Metalworking cluster

The metals industry is a key part of the city and district of Heilbronn. Almost 7,000 employees subject to social security contributions work in over 250 different metalworking companies. With its organisational structure shaped by mid-sized companies, metalworking is a key building block in the production landscape of this economic area. The automotive industry and the mechanical engineering and construction sectors, in particular, benefit from the expertise of metalworking companies, especially in the area of metal finishing. The spectrum of production companies ranges from prototype manufacturing to pilot series production to mass production.

MetallDIALOG

45 actors in the metalworking industry from the Heilbronn economic region are part of MetallDIALOG. Members receive support in the areas of strategy, marketing, efficiency and innovation.

MetallDIALOG c/o Wirtschaftsförderung Raum Heilbronn GmbH

Weipertstraße 8-10
74076 Heilbronn
www.wfgheilbronn.de/metalldialog.html

Dr. Patrick Dufour
+49 7131 7669-700
dufour@wfgheilbronn.de

Assembly and fastening technology cluster

The origins of the Hohenloh assembly and fastening cluster go back to the founding of iron working factory L&C Arnold in 1898. More companies were founded especially after the Second World War giving the cluster its own unique dynamism. The core of the cluster focuses on the trade in assembly and fastening technologies. This includes sophisticated logistics concepts. In addition, the importance of manufacturing screws and fastening materials is growing, especially in the complex specialised screw field and for high-quality products. In addition to trades, the industry places a high level of focus on its customer structure. Direct international sales are a key distribution channel. The cluster, headquartered in Künzelsau, consists of a total of 27 companies.

Wirtschaftsregion Heilbronn-Franken GmbH

Weipertstraße 8-10
74076 Heilbronn
www.heilbronn-franken.com

Dr. Andreas Schumm
+ 49 7131 7669-860
a.schumm@heilbronn-franken.com

Paper processing cluster

The development of a paper processing cluster began in Heilbronn. The cornerstone for the cluster was laid in the early 19th century with the founding of the companies Rauch and Landerer. Even today, the area has an above average percentage of employees in paper, publishing and printing companies, primarily because it has been able to keep the number of employees almost constant over the past several decades. Industrial paper processing in the area focuses on the cardboard box industry and manufacturing machines for the paper industry. However, consumer paper products are also manufactured in Heilbronn, including school and office materials. In addition, millions of envelopes, bags, sacks and tote bags are also produced in the area.

Wirtschaftsregion Heilbronn-Franken GmbH

Weipertstraße 8-10
74076 Heilbronn
www.heilbronn-franken.com

Dr. Andreas Schumm
+ 49 7131 7669-860
a.schumm@heilbronn-franken.com

Environmental technology cluster

The environmental technology cluster is located primarily in the Hohenlohe district. It began with a regional funding initiative to reduce waste. An association of different actors along the supply chain has developed from this initiative over the past few decades, with the goal of increasing energy efficiency in industry and trade to help promote sustainable business practices.

Modell Hohenlohe – Netzwerk für betrieblichen Umweltschutz und nachhaltiges Wirtschaften e. V.

The Modell Hohenlohe corporate network promotes sustainable business and environmental awareness in companies, offering a platform for exchanging information and expertise.

Modell Hohenlohe – Netzwerk für betrieblichen Umweltschutz und nachhaltiges Wirtschaften e. V.

Max-Eyth-Str. 36
74632 Neuenstein
www.modell-hohenlohe.de

Monica Hack
+49 7942 94588-33
m.hack@modell-hohenlohe.de



Fans and ventilation technology cluster

The development of the external rotor motor served as the cornerstone for the Hohenlohe cluster of fan and ventilation technology. Thanks to the wide range of applications for fans, numerous companies have been founded, giving the Hohenlohe district the world's highest concentration of companies in fan and ventilation technology. Companies are engaged in intense competition with one another, constantly driving them to create new innovations. In addition, a variety of supplier companies are located in the area to extend the regional supply chain. Customers served by these companies are diverse, since fans are used almost everywhere – from refrigerated counters to air conditioning systems to ventilation systems.

Wirtschaftsregion Heilbronn-Franken GmbH

Weipertstraße 8-10
74076 Heilbronn
www.heilbronn-franken.com

Dr. Andreas Schumm
+ 49 7131 7669-860
a.schumm@heilbronn-franken.com

Valve, measurement and control technology cluster

After the Second World War, development of a temperature controller for a poultry incubator laid the cornerstone for the valve, measurement and control technology cluster. Other innovations followed, such as rod-type thermostats, gas and oven thermostats, valves for steam control, solenoid valves for washing machines and control circuits for liquids. In addition, companies also created plastic valves and valves for sterile applications in pharmaceuticals and biotechnology. Coaxial valves for high pressures are one special product. The cluster also offers highly-developed sensors and electronics for electrical motors. The cluster emphasises competition and cooperation through mutual supplier networking.

Wirtschaftsregion Heilbronn-Franken GmbH

Weipertstraße 8-10
74076 Heilbronn
www.heilbronn-franken.com

Dr. Andreas Schumm
+ 49 7131 7669-860
a.schumm@heilbronn-franken.com

Packaging technology cluster

The foundation for today's packaging industry cluster in the Schwäbisch Hall district was laid around 1900. It began with the founding of the Ganzhorn company, followed just a few years later by Optima. Over the years, a large number of companies have moved into this area or begun there as spin-offs of existing companies. Some of these have now become global market leaders in their respective niches, while others are on their way to becoming leaders. An average of 80 % of products are exported internationally by packaging machine constructors. This has helped the Schwäbisch Hall district develop into a hub for the global packaging machine industry. Around 8,000 workers are employed in the roughly 40 companies in the cluster.

Packaging Valley Germany e. V.

Packaging Valley brings together over 40 companies from the packaging industry, with a focus on packaging machine construction, in the Heilbronn-Franken region. It also operates a joint VR centre and show room.

Packaging Valley Germany e. V.

Stauffenbergstraße 35-37
74523 Schwäbisch Hall
www.packaging-valley.com

Kurt Engel
+49 791 5801-22
info@packaging-valley.com



Cluster-relevant services – Universities, research and transfer institutions

Institution	Areas of activity
<p>Heilbronn University with RWH Künzelsau (Reinhold-Würth University) and Schwäbisch Hall campus</p>	<p>Heilbronn location – technical programmes: Automotive systems engineering, business administration in transport and logistics, electronical systems engineering, mechanical engineering, mechatronics and robotics, Production and process management, technical management, technical logistics management, process and environmental engineering</p> <p>Heilbronn location – Computer sciences programmes: Applied computer sciences, medical informatics, software engineering, software engineering and management, information systems</p> <p>Heilbronn location – economic programmes: Business and corporate leadership, global business, hotel and restaurant management, international automotive management, international business & intercultural management, international tourism management, international business – intercultural studies, international wine management, sustainable tourism development, tourism management, corporate leadership / business management, transport management and passenger transport, transport management and logistics</p> <p>Künzelsau location – technical programmes: Automation technology and electrical mechanical engineering, electrical engineering, energy management, technical management, industrial engineering</p> <p>Künzelsau location – economic programmes: Business and culture, recreation and sports management, business and social management, business marketing media management, International marketing and communication</p> <p>Schwäbisch Hall location – economic programmes: Business analytics – controlling – consulting, management and purchasing management and HR, management and corporate accounting, management and sales: Finance, management and sales: Trade, Management and sales: Industry</p>
<p>Baden-Württemberg Cooperative State University, Heilbronn</p>	<p>Economic fields Business administration, trade in consumer goods, fashion management and digital trade, business administration for food management, business administration for services management with human resources, consulting & sales, media - sales - communication, sports management</p>

Institution	Areas of activity
Baden-Württemberg Cooperative State University, Centre of Advanced Studies, Heilbronn	<p>Economic fields: Business management with accounting, controlling and taxes, finance, general business management, marketing, media and marketing, HR and organisation or supply chain management, logistics and production, taxes, invoicing and auditing, business informatics, advanced practice in Healthcare</p> <p>Technical fields: Electrical engineering, computer sciences, integrated engineering, mechanical engineering, industrial engineering</p> <p>Social sciences fields: Governance social work, social work in migration societies, social planning</p>
Baden-Württemberg Cooperative State University Mosbach - Bad Mergentheim satellite	<p>Economic and technical fields: Health management with healthcare IT, healthcare institutions and healthcare industry, international business with international programme in business, industrial engineering with international technical sales management, innovation and energy management, service engineering, innovation and product management, international programme in engineering</p>
Wertheim Study Centre of the SRH University of Applied Sciences	<p>Industrial engineering program, technical sales</p>
Munich Technical University, Heilbronn location (from WS 2018/19)	<p>Economic fields: Management, management & innovation</p>



Institution	Areas of activity
<p>Research and transfer institutions</p>	<p>Educational and Technology Centre of the Heilbronn-Franken Chamber of Trade (BTZ Heilbronn) Modern techniques and technologies for trade are developed through a collaboration between science and industry in the Educational and Technology Centre. It offers a competence centre in “Renewable energy technologies”, among other services.</p> <p>German Aerospace Centre, Lampoldshausen location The Lampoldshausen DLR location, where roughly 350 employees work today, was founded in 1959 as a test track for testing liquid propellant rocket engines and began operations in 1962. One central task of the DLR in Lampoldshausen is planning, building, and operating test benches for aerospace propulsion drives on behalf of the European Space Association ESA and in collaboration with the European aerospace industry.</p> <p>Fraunhofer Institute for Silicate Research ISC, Würzburg, Bronnbach branch Focal areas: new testing methods and modern processing technologies specifically for the laboratory glass field, along with protective and coating programmes for threatened cultural assets, close integration with the Technology and Glass research association (FTG)</p> <p>Weinsberg Teaching and Testing Facility for Vineyards and Orchards This facility, run by the state of Baden-Württemberg, serves as a training provider (viticulture, oenology, fruit production and distilling) and quality inspector. The state vineyard of Weinsberg is also part of the facility.</p> <p>Lampoldshausen Technology Transfer Centre Range of duties: Promoting cooperation between scientists, engineers, technicians and tradespeople working in research, knowledge transfer from science to industry, providing know-how and infrastructure Goals: Intensifying exchange of knowledge and information as part of technology transfer, maintaining contacts with companies, universities, research institutions and state institutions of the federal government and states.</p> <ul style="list-style-type: none"> • Member of the LRBW Baden-Württemberg Aerospace forum • Project partner in the Future Aerospace Network FAN cluster initiative • Member of the Verband der Baden-Württembergischen Technologie- und Gründerzentren e. V. • Forum Ariane Lampoldshausen e. V.



03



Ost- württemberg



The region

The Ostwürttemberg region covers an area of 2,139 km² and has roughly 444,380 residents. The region includes the two districts of Heidenheim and Ostalbkreis. The economy here is characterised much more strongly by production than elsewhere in Baden-Württemberg. Thanks to the innovative capacity of high-performing mid-sized companies, global leading companies and close integration between the corporate sector and science, the region is one of the top in German patent statistics.

Close integration of economics and science

Integration into the Stuttgart urban region and close proximity to the Ulm area helps to grow networks in the fields of metalworking, machine, system and tool construction or automotive, as well as in other interdisciplinary areas like photonics and surface technology.

The clusters in the region and their mature structures link to many areas of early industrial development, in particular metalworking and processing. This is true of surface technology as well as the automotive sector and the areas of machine, system and tool building and the creative economy. Logistics plays an increasingly important role for many companies in Ostwürttemberg.

Key industries (based on the number of employees subject to social insurance contributions, without trade, construction or the public sector) include:

- The metalworking industry with mechanical engineering and manufacturing metal products,
- Vehicle construction with suppliers,
- Manufacturing of electrical equipment and
- Manufacturing DV equipment as well as electronic and optical products.

In comparison to other regions, this area offers above average innovative capacity.

Innovation index*

Innovation index	33,1	State 38,4
Level index	30,2	State 35,2
Dynamic index	42,0	State 47,8

Employees in the individual sectors**

Production industry	46,4 %	State 35,7 %
Services	53,2 %	State 63,8 %

R&D personnel percentage***

2013	1,6 %	State 2,1 %
2015	2,6 %	State 2,3 %

* Source: Statistical Office of Baden-Württemberg, as of 2016

** Source: Statistical Office of Baden-Württemberg, as of 06/2017

*** Source: Statistical Office of Baden-Württemberg, FTE R&D personnel in relation to FTE employed persons, as of 08/2016

Contact person

Wirtschaftsförderungsgesellschaft mbH Region
Ostwürttemberg (WiRO)
Nadine Kaiser
Bahnhofplatz 5
73525 Schwäbisch Gmünd

Phone: +49 7171 92753-0
E-mail: kaiser@ostwuerttemberg.de
WWW: ostwuerttemberg.de

Clusters and cluster initiatives in the region

Automotive cluster

The Ostwürttemberg region offers a close-knit automotive network of companies and institutions, with multiple university and research institutions tailored to the needs of the industry. Well over 250 companies representing over 30,000 jobs serve as direct or indirect suppliers to car, truck, commercial, and specialised vehicle manufacturers. They represent relevant key industries for the automotive industry, benefiting from their proximity to important suppliers and with the number of OEM (original equipment manufacturers) in a range of just 300 km into the double digits. The cluster takes a top spot among Germany's 97 regions in patent granting and registration in the mobility field, proof of its innovative capacity and technological performance.

Ostwürttemberg Automotive Initiative

The Ostwürttemberg Automotive Initiative is further developing the area as an automotive location by promoting networking among companies and with universities and research institutions.

Automotive-Initiative Ostwürttemberg c/o Wirtschaftsförderungsgesellschaft mbH Region Ostwürttemberg (WiRO)

Bahnhofplatz 5
73525 Schwäbisch Gmünd
www.ostwuerttemberg.de/automotive/

Simone Jansen
+49 7171 92753-23
jansen@ostwuerttemberg.de

Energy cluster

The Ostwürttemberg region houses a large number of small and mid-sized companies working in a variety of renewable energy areas. The companies cover different segments of the supply chain, from energy production to energy storage. Institutions like Aalen University of Applied Sciences, which houses the Regional Competence Centre for Energy Efficiency (KEFF), the DHBW Heidenheim, or the Innovation Centre for Systems and Energy Technology make a key contribution to research and development as well as education and training. Model projects like the energy-autonomous community of Rainau, the Gussenstadt and Heubach-Buch bio-energy villages, the Lutstrut and Mutlanger Heide solar parks, or the Schwäbisch Gmünd electromobility model community are taking new approaches to face the energy transformation.

biomastec: New biomass efficiency

biomastec is focused on the market-oriented research & development of innovative processes, products and technical services for using bioresources.

biomastec: neue BiomasseEffizienz c/o EurA AG

Max-Eyth-Straße 2
73479 Ellwangen
www.biomastec.de

Thilo Riehl
+49 7961 9256-233
thilo.riehl@aura-ag.de

Forestry and timber cluster

The cluster stands out for its wide range of services, anchored in the Ostwürttemberg region and the Schwäbisch Hall district, covering practically every area of the wood supply chain. We have identified roughly 900 companies associated with this spectrum. These companies range in size, and are either directly integrated into, or function as suppliers to companies along the supply chain. In addition to small woodworking and finishing companies, which traditionally play a key role, the area also houses mid-sized companies and large businesses who are leaders in their market segments. They focus especially on innovative wood construction. In addition, the area offers the nation's highest density of sawmills and machine and toolmaking activities focused on woodworking.

Wirtschaftsförderungsgesellschaft mbH Region Ostwürttemberg (WiRO)

Bahnhofplatz 5
73525 Schwäbisch Gmünd
www.ostwuerttemberg.de/holz

Nadine Kaiser
+49 7171 92753-0
kaiser@ostwuerttemberg.de

Creative economy cluster

Over 2,500 companies, self-employed persons, institutions, associations, educational and transfer institutions are working in the cultural and creative economy sector in Ostwürttemberg. Regional focuses include design and the advertising market, although one tenth of members are part of the software and games industry, which is growing in importance. This makes the creative sector a key regional economic factor, allowing it to support companies in other competence fields as an interdisciplinary industry. Numerous network activities in the creative centres of Aalen, Heidenheim and Schwäbisch Gmünd – where the Ulm School of Design (HfG) is a key success factor – help to create a vibrant creative scene in the region that makes Ostwürttemberg attractive to start-ups and new companies in general.

Ostwürttemberg Creative Network

The Ostwürttemberg Creative Network supports creative minds with a wide range of activities. This helps make the region an attractive location within the industry.

Creative network Ostwürttemberg c/o Wirtschaftsförderungsgesellschaft mbH Region Ostwürttemberg (WiRO)

Bahnhofplatz 5
73525 Schwäbisch Gmünd
www.ostwuerttemberg.de/kreativ

Nadine Kaiser
+49 7171 92753-0
kaiser@ostwuerttemberg.de

Logistics cluster

The Ostwürttemberg region is located between the two economically strong states of Baden-Württemberg and Bavaria, directly on the north-south axis of the A7, and not far from the A7 / A8 interchange. It is easily accessible from Stuttgart, Ulm, Würzburg and Munich. Many logistics companies have set up shop in the area, benefiting from its central location. The Ostwürttemberg production region understands the importance of the logistics industry for securing the location's future, and promotes the industry and public understanding of its services.

Wirtschaftsförderungsgesellschaft mbH Region Ostwürttemberg (WiRO)

Bahnhofplatz 5
73525 Schwäbisch Gmünd
www.ostwuerttemberg.de

Nadine Kaiser
+49 7171 92753-0
kaiser@ostwuerttemberg.de

Machine, system and tool construction cluster

Over 300 companies from machine, system, and tool construction are located in the Ostwürttemberg region. The spectrum of companies ranges from small, specialised blacksmiths to typically flexible mid-sized companies to large global companies known for setting major trends. The cluster includes numerous market leaders and hidden champions. They are supported by a large number of university and research institutions that are tailored to their needs. The focus in Ostwürttemberg is on building tooling machines, assembly machines and systems, conveyor and drive technology, and manufacturing machining tools.

Ostwürttemberg Machine, system and tool construction

The initiative continues to develop the location as a builder of machines, systems and tools by encouraging networking between companies and with universities and research institutions.

Machine, system and tool construction Ostwürttemberg c/o Wirtschaftsförderungsgesellschaft mbH Region Ostwürttemberg (WiRO)

Bahnhofplatz 5
73525 Schwäbisch Gmünd
www.ostwuerttemberg.de/
maschinenbau

Simone Jansen
+49 7171 92753-23
jansen@ostwuerttemberg.de

Surface technology cluster

Surface finishing has enjoyed hundreds of years of tradition in Ostwürttemberg. Although the sector was originally focused on artisanal gold and silver goods production, it has become more and more technology focused over the past several decades. Today, Ostwürttemberg is a key competence centre in surface technology, with a large number of often globally renowned research and transfer institutions, training and educational facilities, associations and companies – all of which benefit from a high mutual networking potential. Because of this, the region boasts practically all common surface technologies for a wide range of different applications.

fotec – Functional surfaces network

The goal of the cluster initiative is to initiate and implement R&D projects and exchange experiences and information on new technologies related to functional surfaces area.

fotec - Functional surfaces c/o EurA AG

Max-Eyth-Straße 2
73479 Ellwangen
www.fotec-netzwerk.de

Dr. Günter Hohmann
+49 7961 9256-0
dr.hohmann@eura-ag.de

Photonics cluster

The Ostwürttemberg Photonic Valley currently includes roughly 60 companies. Some of these are leading international large companies like ZEISS, while others are highly innovative small and mid-sized companies from the photonics industry. Overall, the photonics industry in Ostwürttemberg employs around 8,000 people. The cluster also offers an outstanding institution for training highly-qualified experts in the photonics field at Aalen University – the most research-focused College of Applied Sciences in the country. In addition, the state-wide innovation networks for Optische Technologien Photonics BW e.V. and multiple Steinbeis transfer centres focusing on photonics are headquartered in the region. Ostwürttemberg is the region with the highest intensity of patents in the measure, inspect, optics and photography technical areas.

Wirtschaftsförderungsgesellschaft mbH Region Ostwürttemberg (WiRO)

Bahnhofplatz 5
73525 Schwäbisch Gmünd
www.photonic-valley.de

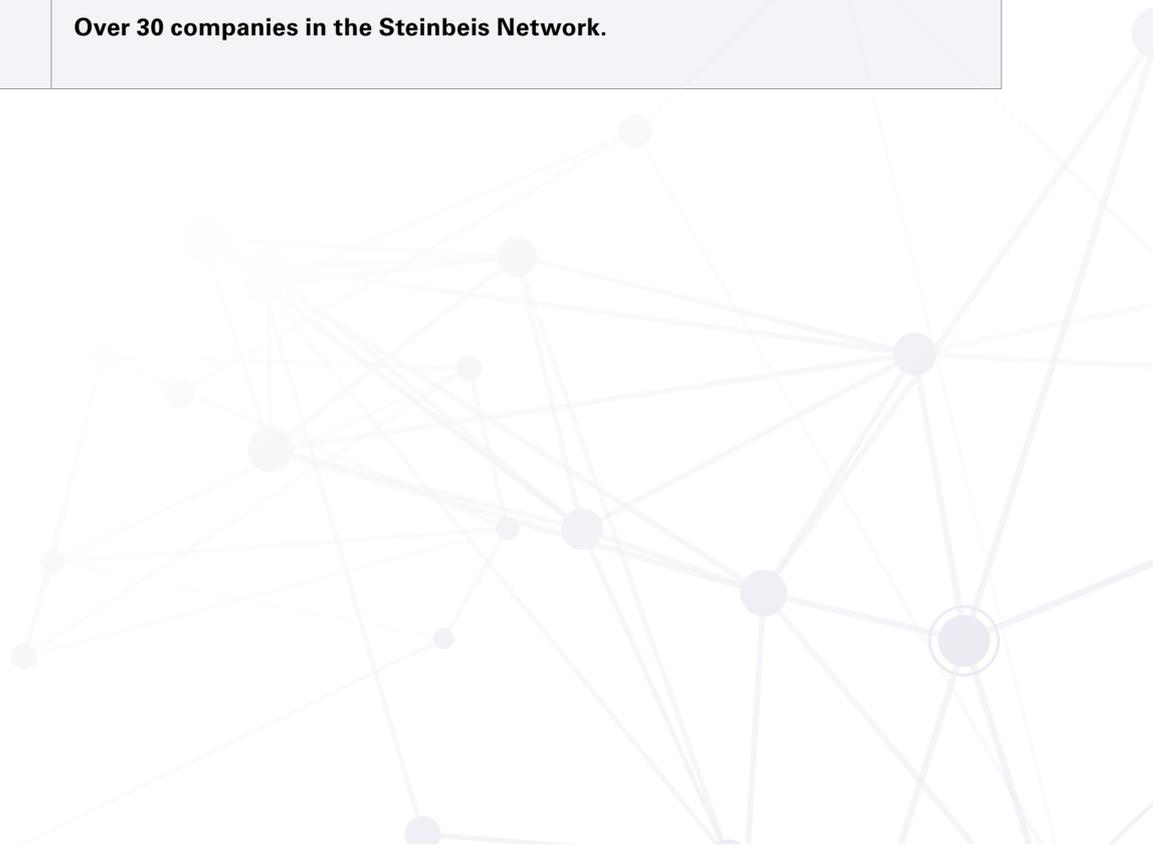
Nadine Kaiser
+49 7171 92753-0
kaiser@ostwuerttemberg.de



Clusterrelevante Angebote – Hochschulen, Forschungs- und Transfereinrichtungen

Institution	Fields
Aalen University – Technology and Science	<p>Roughly 60 programmes, some of them dual studies programmes, which are practically oriented and focused on the requirements of the regional economy in the departments of chemistry, electronics and computer sciences, mechanical engineering and materials science, optics and mechatronics and economics. The Internet of Things programme takes up forward-thinking topics like Industry 4.0, big data, and smart homes. Multiple foundation professors, including the foundation chair in renewable energies. Other dual studies programmes and services at the Graduate School Ostwürttemberg (GSO) and the Continued Training Academy at Aalen University.</p> <p>Research and transfer, for instance, through a variety of research institutions and cooperations in the key areas of advanced materials and manufacturing, photonics, analytic and organic chemistry, smart mechatronic systems and economical and social innovations in social change. The Innovation Centre at Aalen University (INNO>Z) supports the founding of new companies from the university and the region, aiding in technology transfer, in particular to small and mid-sized companies.</p>
University of Design Schwäbisch Gmünd (HfG)	<p>The Schwäbisch Gmünd University of Design offers four bachelor's programmes – communication design, interaction design, production design and internet of things/ designing networked systems – as well as a master's programme in strategic design. The university's goal with these programmes is to train designers who will reflect their professional action through social developments. It maintains close collaborations with companies and institutions from the region.</p>
Baden-Württemberg Cooperative State University (DHBW) Heidenheim	<p>Selected cluster-related programmes in the departments of technology and economics. In addition, the University offers a variety of programmes in the social sciences department and the field of health.</p> <p>Dual master's programmes at the Centre for Advanced Studies (CAS) of the DHBW and Graduate School Ostwürttemberg – GSO.</p> <p>Knowledge transfer and research through the Centre for Intercultural Competence and the Innovation and Technology Transfer Centre Heidenheim (ITZ).</p>
University of Education Schwäbisch Gmünd	<p>Various cluster-related programmes, including dual studies programmes, such as in health promotion, engineering education and media education.</p>

Institution	Fields
<p>Research and transfer institutions</p>	<p>fem Precious Metals + Metallurgical Chemicals Research Institute The fem in Schwäbisch Gmünd, part of the Baden-Württemberg Innovation Alliance, has been an independent, non-profit institution working in the areas of precious metals, materials science and surface technology since 1922. Over 80 professionals from the fields of science, engineering and technology develop new materials, surfaces, and processes for industrial practice. Research projects and services by fem are interdisciplinary and include finding solutions for new materials and production technologies, e.g. for alternative energy systems and electro-mobility. Innovative production methods are developed and accredited testing procedures are offered. The fem has a broad range of equipment, including highly modern instruments and devices.</p> <p>Technische Akademie (TA) für berufliche Bildung Schwäbisch Gmünd e. V. As a professional training institution, TA Schwäbisch Gmünd organises education and continued training programmes primarily in commercial, technical, and industrial areas. The Academy also offers practical professional events and demand-oriented retraining measures. The primary purpose of the association is promoting training and education. In particular, it aims at awakening a curiosity for technology early on through independent research, action, and the ability and readiness to train in and study technical professions. It also helps to expand social competence.</p> <p>Over 30 companies in the Steinbeis Network.</p>



04



Mittlerer Oberrhein



The region

The Mittlerer Oberrhein region is the smallest of the twelve planning regions of Baden-Württemberg. With an area of 2,137 km², it has roughly 1,033,550 residents. It is centrally located in the Oberrhein region between the urban centres of Frankfurt am Main and Basel. The region includes the municipalities of Karlsruhe and Baden-Baden and the two districts of Karlsruhe and Rastatt. The Mittlerer Oberrhein and Südpfalz regions together join across state lines to form the Karlsruhe technology region.

Leading in information and communication technologies and mobility

The Mittlerer Oberrhein region, with Karlsruhe as its centre, is one of Europe's leading locations in information and communication technologies, mobility, energy, the automotive sector, nanotechnology, culture and the creative economy. Due to the geographic location of the region, which borders directly on the state of Rheinland-Pfalz and the French Département Bas-Rhin, some of the cluster initiatives work across state and national borders.

Key industries (based on the number of employees subject to social insurance contributions, without trade, construction or the public sector) include:

- Vehicle construction with suppliers,
- manufacturers of electrical equipment,
- service providers in information technology and enterprise-related sectors,
- mechanical engineering.

The region's innovative capacities are reflected in its dense network of universities, research institutions and high-tech companies – including the Karlsruhe Institute for Technology (KIT), multiple Fraunhofer Institutions, and the Computer Sciences Research Centre (FZI) – to name just a few of the major institutions. It offers outstanding proximity to scientific excellence.

The region's scientific expertise is brought together through the Innovation Alliance Technology Region Karlsruhe research network, making it available to regional mid-sized companies. The innovation index has shown steady growth in the region for many years, and today nearly matches the country average. The Mittlerer Oberrhein region is characterised more heavily by the service sector and less by production than Baden-Württemberg as a whole.

Innovation index*

Innovation index	35,2	State 38,4
Level index	31,9	State 35,2
Dynamic index	45,3	State 47,8

Employees in the individual sectors**

Production industry	30,6 %	State 35,7 %
Services	69,1 %	State 63,8 %

R&D personnel percentage***

2013	1,0 %	State 2,1 %
2015	1,2 %	State 2,3 %

* Source: Statistical Office of Baden-Württemberg, as of 2016
** Source: Statistical Office of Baden-Württemberg, as of 06/2017
*** Source: Statistical Office of Baden-Württemberg, FTE R&D personnel in relation to FTE employed persons, as of 08/2016

Contact person

TechnologieRegion Karlsruhe GmbH
Jochen Ehlgötz
Emmy-Noether-Straße 11
76131 Karlsruhe

Phone: +49 721 40244-712
E-mail: jochen.ehlgoetz@technologieregion-karlsruhe.de
WWW: technologieregion-karlsruhe.de

Clusters and cluster initiatives in the region

Automotive – Mobility cluster

The region has a tradition of mobility. Today, the region leads in public transportation and is a pioneer in integrating car and bike sharing programmes into regional public transportation services. Multiple large car and truck plants and their suppliers are located here. The region is characterised by an outstanding research infrastructure in the automotive sector. It is concentrated in the Karlsruhe mobility systems region. This infrastructure includes, in particular, the Karlsruhe Institute for Technology (KIT) and the Fraunhofer Institute ICT with its globally recognised expertise in airbag technology, the Fraunhofer Institutes IOSB and ISI, and the Computer Sciences Research Centre (FZI).

Automotive. Engineering. Network. Das Mobilitätscluster e. V. (AEN)

The AEN is a mobility cluster initiative from Karlsruhe focused on promoting mobility projects. The AEN is composed of companies, development agencies and research institutions.

Automotive. Engineering. Network. Das Mobilitätscluster e. V.

Zähringerstraße 65a
76133 Karlsruhe
www.ae-network.de

Waldemar Epple
+49 721 968894-58
info@ae-network.de

Energy cluster

A wide variety of companies and research institutions working in the energy efficiency sector are located in the Karlsruhe technology region. Together, they form the energy cluster. The supply chain focuses on connecting IT technology with the energy sector, increasing energy efficiency, and applying new techniques for generating energy in the areas of biomass and geothermal power. In conjunction with academic institutions and international energy research, the cluster has taken key steps to help shape the energy revolution. The energy landscape also includes energy networks, innovative municipal utilities and energy-focused start-ups.

EnergieForum Karlsruhe

A strong network of expertise composed of active companies, start-ups, research and development institutions and established financial sector actors – focused on a forward-thinking energy strategy.

EnergieForum Karlsruhe c/o Karlsruhe development agency

Zähringerstraße 65a
76133 Karlsruhe
www.energieforum-karlsruhe.de

Andrea Bühler
+49 721 133-7334
andrea.buehler@wifoe.karlsruhe.de

fokus.energie e. V.

A cooperation between actors and educational services helps support the development and implementation of innovative and sustainable technologies. The network offers targeted aid and funding to support company founders.

fokus.energie e. V.

Haid-und-Neu-Straße 7
76131 Karlsruhe
www.fokusenergie.net

Dr.-Ing. Hans Hubschneider
+49 721 96 4927-86
info@fokusenergie.net

Information technology / corporate software cluster

The information and communications technology cluster has developed in the Karlsruhe region over the last 25 years, and is the cluster with the greatest regional potential for development. It focuses its activities on information technology (IT), primarily on technical software. This is used primarily in the business-to-business area, including the IT and media sector itself. The Mittlerer Oberrhein region has over 4,100 companies in the information and communication technologies sector, making it a leader within Germany and a key location in a European-wide comparison. The region is thinking ahead in the field of digitisation, at the Karlsruhe Institute for Technology (KIT), its universities, and the ZKM (Centre for Art and Media). In addition, the regional digitisation centre in Bruchsal is supporting the digital transformation. Companies in the region make the highest investments in research and development of any information and communications companies across Europe, and have the highest level of research activity in Europe.

CyberForum e. V.

The CyberForum e.V. has roughly 1,200 members, making it the most active regional high-tech corporate network in Europe. It operates the CyberLab and other facilities as incubators for start-ups.

CyberForum e. V.

Haid-und-Neu-Straße 18
76131 Karlsruhe
www.cyberforum.de

David Hermanns
+49 721 602897-0
info@cyberforum.de

Creative economy cluster

The cultural and creative economy holds major potential to improve the economic strength of the Mittlerer Oberrhein region over the long term. Over 210,000 people work in the creative economy in Baden-Württemberg, making this sector the third largest employer in the region. Karlsruhe is home to around 15,000 of these workers, and is a hub for the cultural and creative economy of the southwest. One in 9 companies is part of the sector. The region's strengths lie in technology-affiliated fields of the creative economy. These include, in particular, the interface between technology, design, art, research and science, which generates innovative potential. Often, new products are created through collaboration with other sectors, which is why the Karlsruhe region promotes a broad mix of different cultural and creative fields.

K3 – Karlsruhe Cultural and Creative Economy Office

The K3 organises industry and cross-sector networking among actors in the creative industry to utilise and tap into existing potential for creativity and innovation.

K3 – Karlsruhe Cultural and Creative Economy Office

Alter Schlachthof 33
73131 Karlsruhe
www.k3-karlsruhe.de

Dirk Metzger
+49 721 82100-661
dirk.metzger@wifoe.karlsruhe.de

Nanotechnology cluster

The region has developed a cluster unique within the state for its focus on nanotechnology. The cluster is focused on nanotechnology research at the Karlsruhe Institute for Technology (KIT) and the NanMat national competence network. This nationally and internationally cutting-edge cluster is shaped by cooperations between research and corporate development and companies from Karlsruhe and the surrounding area as well as from the neighbouring Rhein-Neckar region.

HybridSensorNet e. V.

The HybridSensorNet e.V. cluster initiative connects all relevant actors in innovative sensor technologies to hold events, seminars, and symposia.

HybridSensorNet e. V.

Kaiserstraße 12
76131 Karlsruhe
www.hybridsensornet.org

Dr. Hubert B. Keller
+49 721 6082-5756
info@hybridsensornet.org

NanoMat

NanoMat - the network for nanomaterials and nanotechnologies at the Karlsruhe Institute for Technology (KIT).

NanoMat c/o Karlsruher Institut für Technologie

Hermann-von-Helmholtz-Platz 1
76344 Eggenstein-Leopoldshafen
www.nanomat.de

Prof. Dr. Jasmin Aghassi
+49 721 608-28318
+49 721 608-26420
jasmin.aghassi@kit.edu

Cluster-relevant services – Universities, research and transfer institutions

Institution	Fields
Karlsruhe Institute for Technology (KIT)	<p>The Karlsruhe Institute for Technology (KIT) is a research university located in Helmholtz. The KIT's major research fields are focused on long-term social challenges and engaged in finding sustainable solutions for urgent future questions. Its goal is to carry out research, teaching, and innovation at the highest levels and contribute to major shifts within society, such as the energy revolution, safe and sustainable mobility, and smart technologies for the information society. It focuses on the topics of energy, mobility, and information.</p> <p>Other key focal areas include climate and the environment, humans and technology, and elementary particle and astroparticle physics. With roughly 9,300 employees, including over 6,000 in the sciences and education, and over 25,500 students, the KIT is one of Europe's largest research and teaching institutions. Innovative work at the KIT creates a bridge between knowledge and application for the good of society, creating economic security and maintaining the natural livelihood.</p> <p>As part of the Karlsruhe mobility systems region, the KIT combines and connects competencies and personnel across organisations to jointly research and develop forward-thinking mobility solutions with the Fraunhofer Institutes located in Karlsruhe, the FZI, Karlsruhe University, and partners from industry, the economy, and the public sector in an intensive training centre.</p>
Karlsruhe University – Technology and Science	<p>The Karlsruhe University of Technology and Science, founded in 1878, has well over 8,000 students and 204 professors, making it one of the largest universities of applied sciences in Baden-Württemberg. It offers 19 bachelor's and 20 master's programmes in engineering, computer sciences, economics and media-related disciplines. Karlsruhe University scores highly in nationwide rankings each year, evidence of the very high quality of academic education it offers. The university focuses heavily on practical training as well. Partnerships with over 150 universities worldwide allow an increasing number of students to spend a semester abroad each year.</p> <p>Karlsruhe University is one of the strongest research universities for applied sciences in Germany. It engages in applied research at many different research institutions in an impressive range as regards content. Basic human needs are the focus of these research activities. Applied research has developed into a key pillar of work at Karlsruhe University. This focus helps ensure that learning is topical and of high-quality. Intensive collaboration with industry players contributes to technology transfer.</p>

Institution	Fields
<p>Baden-Württemberg Cooperative State University, Karlsruhe</p>	<p>The Baden-Württemberg Cooperative State University (DHBW) is a German state cooperative university which integrates practical training into its pedagogy. It was founded on 1 March, 2009 and continues the over 40 years of success of the dual education model developed by the former Baden-Württemberg Professional Academy. The DHBW cooperates with roughly 9,000 selected companies and social institutions at its nine locations and three campuses to offer a large number of nationally and internationally accredited bachelor's programmes in the areas of economics, technology, social sciences and health. The DHBW also offers master's programmes which can be completed as part of or in conjunction with the student's career plans. With around 34,000 current students and over 160,000 alumni, the DHBW is Baden-Württemberg's largest university.</p> <p>The key feature of the DHBW is its dual studies concept with alternating theoretical and practical learning phases, as well as close cooperation between the university and its dual partners. Switching between theoretical and practical phases at three-month intervals allows students to not only gain professional and methodological expertise but also gather practical experience and the decision-making and social skills they need in their everyday work. The university uses a transfer and application-focused approach involving cooperative research between the university and dual studies partners. Cooperative research means developing innovative concepts, strategies and technologies and reflecting on professional and specialist expertise in economics and technology. Transfer also offers added application-focused value for our dual partners.</p>
<p>Transfer-oriented research institutions</p>	<p>Fraunhofer Society institutions</p> <ul style="list-style-type: none"> • Fraunhofer Institute for Chemical Technology ICT, Pfinztal-Berghausen • Fraunhofer Institute for Optronics, Systems Engineering and Image Analysis IOSB, Karlsruhe • Fraunhofer Institute for System and Innovation Research ISI, Karlsruhe <p>Other institutions</p> <ul style="list-style-type: none"> • Computer Sciences Research Centre (FZI) • Centre for Art and Media (ZKM) • European Institute for Energy Research (EIFER) • Digital Innovation Centre (DIZ) <p>In addition, 20 companies in the Steinbeis Network are located in Karlsruhe.</p>

Institution	Fields
<p>University of Design</p>	<p>The State University of Design (HfG) Karlsruhe is a new kind of art university, taking on the challenge of examining the interactions between art and design and proven and new technologies. It maintains a generous and open attitude to the outside world, ensuring outstanding freedom in its internal academic structure. Communication design, product design, media art, exhibition design and scenography, aesthetics and media philosophy are learned and taught through trans-disciplinary and cross-media open structures.</p> <p>Media arts are the focus of HfG Karlsruhe programmes, with specialities in digital art / InfoArt, film, photography, video, moving images, sound and 3D productions. University programmes offer not only outstanding artistic training with the newest media technologies, but also create opportunities for students to research the future of media arts together.</p> <p>Even today, the university remains true to the original vision of the founding rector of the HfG Karlsruhe, Heinrich Klotz, who wanted to establish an “electronic Bauhaus” for the long-term.</p> <p>The HfG Karlsruhe asks relevant, modern questions related to film, animation, art, design, theory, technology and computer sciences. Future Design, for example, is an experimental laboratory and creative collaboration between science, technology and art initiated by the HfG Karlsruhe focused on new art forms and considering the social impacts of technology in the European context.</p> <p>The newly founded Artificial intelligence and media philosophy research group investigates the impacts of artificial intelligence on society and culture.</p>
<p>University of Music</p>	<p>The Karlsruhe University of Music offers both traditional educational fields as well as studies in modern music, musical theatre, and musical journalism. At the Institute for Music Journalism for Radio TV Internet at the Karlsruhe University of Music, students are trained to become qualified musical and cultural journalists for the programming and production areas. Around 650 students are currently enrolled at the Karlsruhe University of Music.</p>

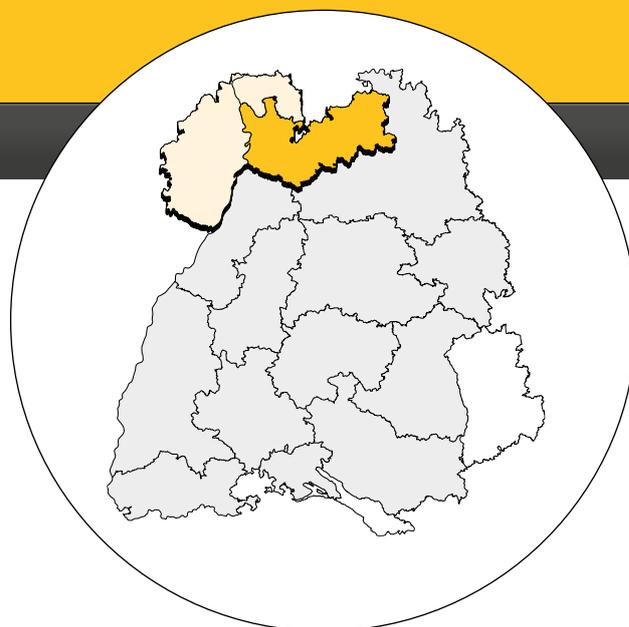


Institution	Fields
Stuttgart State Academy of Art and Design	<p>The roughly 300 students learn through making art, discussing the results of their work with teachers, and seeking out interaction with their fellow students. This methodology reflects the idea that art and the process of creating art can be used as a tool for teaching and learning. Classroom training is supplemented through overarching art history and theoretical studies, as well as workshop-based learning.</p> <p>The State Academy of Visual Arts Karlsruhe is a renowned institution, primarily because of its conscious decision to concentrate on the free arts (painting, sculpture, drawing), which it views as an open creative process involving an ongoing exchange with the changing world of media.</p>





Rhein-Neckar



The region

The Rhein-Neckar urban region (European Metropolitan Region Rhein-Neckar - MRN) is located in southwestern Germany, at the intersection between the three states of Baden-Württemberg, Hessen and Rheinland-Pfalz. Roughly 2.35 million people live in an area of 5,637 km², with a little over 1.1 million of them living in the Baden-Württemberg section (2,422 km²). The economic success of the region is closely associated with its outstanding scientific and research landscape, which offers a high level of innovative potential.

Strong mid-sized sector and high quality of life

In comparison to the state of Baden-Württemberg, the economy of the region is more strongly characterised by the service sector than production. The percentage of service providers is higher than the state average. In 2006, organisations involved in collaborative regional development were restructured to create a private partnership model unique across Germany. Since that time, the Metropolregion Rhein-Neckar GmbH, the Rhein-Neckar regional association, and the Zukunft Metropolregion Rhein-Neckar e. V. have worked together for joint regional development.

Key industries (based on the number of employees subject to social insurance contributions, without trade, construction or the public sector) include:

- The chemical industry,
- Service providers in information technology,
- Vehicle construction with suppliers, and
- life sciences.

The Baden-Württemberg section of the European Metropolitan Region Rhein-Neckar ranks third best in the level index. This means the urban region is roughly average in terms of the innovation going on in other regions.

Innovation index*

Innovation index	40,5	State 38,4
Level index	37,4	State 35,2
Dynamic index	49,8	State 47,8

Employees in the individual sectors**

Production industry	27,4 %	State 35,7 %
Services	72,3 %	State 63,8 %

R&D personnel percentage***

2013	2,2 %	State 2,1 %
2015	2,4 %	State 2,3 %

* Source: Statistical Office of Baden-Württemberg, as of 2016
** Source: Statistical Office of Baden-Württemberg, as of 06/2017
*** Source: Statistical Office of Baden-Württemberg, FTE R&D personnel in relation to FTE employed persons, as of 08/2016

Contact person

Verband Region Rhein-Neckar
Klemens Gröger
M1, 4-5
68161 Mannheim

Phone: +49 621 10708-213
E-mail: klemens.groeger@vrrn.de
WWW: m-r-n.com

Clusters and cluster initiatives in the region

Automotive cluster

The cluster region is home to around 2,700 automotive companies, most of them mid-sized companies, making up around 12.3 percent of the region's workforce. The automotive cluster in the Rhein-Neckar urban region focuses on commercial vehicle manufacturers (trucks, buses, railway vehicles, tractors). The large manufacturers, on which the cluster is based, are some of the top producers around the world. The supplier sector also offers good vertical integration in this area. In addition, supplier companies are working throughout the entire supply chain for vehicle production. Engineering companies and specialised component manufacturers, in particular, enjoy a good reputation.

RheinMainNeckar Automotive Cluster

The cluster initiative, founded in 2003 by the IHK Darmstadt, Bertrandt GmbH and the Groß-Gerau district, works along the entire automotive supply chain. Its 600 members come from the Rhein-Main-Neckar area.

Automotive-Cluster RheinMainNeckar c/o IHK Darmstadt Rhein Main Neckar

Rheinstraße 86
64295 Darmstadt
www.automotive-cluster.org

Jens-Uwe Lalk
+49 6151 871-158
lalk@ darmstadt.ihk.de

Commercial Vehicle Cluster – Nutzfahrzeug GmbH

The CVC acts as a network for partners from the economy, science and policy sectors in southwestern Germany, in particular Rheinland-Pfalz, as a leading competence centre for the commercial vehicles industry.

Commercial Vehicle Cluster – Nutzfahrzeug GmbH

Europaallee 3-5
67657 Kaiserslautern
www.cvc-suedwest.com

Dr. Martin Thul
+49 631 414862-50
info@cvc-suedwest.com

Biotechnology cluster

A leading and innovative cluster for medical biotechnology has become established in the region. It is composed of pharmaceutical and diagnostics companies, small and mid-sized biotech enterprises, and research and university institutions. Key focal areas include personalised medicine and cancer research.

BioRN – Biotechnology Cluster Rhein-Neckar

Since 1996, BioRN Network e.V. has focused on developing the biotechnology cluster in the Rhein-Neckar region to be one of the leading life sciences cluster initiatives in Europe.

BioRN Cluster Management GmbH

Im Neuenheimer Feld 582
69120 Heidelberg
www.BioRN.org

Julia Schaft
+49 6221 4305-111
info@biorn.org

Information technology / corporate software cluster

The largest software company in Europe plays a key role in the region, offering a strong vertical stimulus for the regional supply chain as well. The IT cluster is also broadly diversified.

GeoNet.MRN – Geoinformation network of the Rhein-Neckar urban region

GeoNet.MRN focuses on creating social benefit, improved accessibility and responsible handling of geoinformation.

GeoNet.MRN

Czernyring 22/11
69115 Heidelberg
www.geonet-mrn.de

Hartmut Gündra
+49 6221 477-788
HGuendra@geonet-mrn.de

IT FOR WORK e. V.

IT FOR WORK serves as a network for the IT industry – its members include small and mid-sized IT companies and international market leaders.

IT FOR WORK e. V. c/o IHK Darmstadt Service GmbH

Rheinstraße 89
64295 Darmstadt
www.it-for-work.de

Kirsten Rowedder
+49 6151 871-1270
rowedder@it-for-work.de

IT-Forum Rhein-Neckar e. V.

The Rhein-Neckar IT Forum is the cluster initiative for IT and media in the Rhein-Neckar urban region.

IT-Forum Rhein-Neckar e. V.

Amtsstraße 8
67059 Ludwigshafen
www.itforum.de

Peter Schubert
+49 621 59570-500
schubert@itforum.de



Creative economy cluster

This young cluster developed in Mannheim from a combination of the growing pop scene, the state pop academy, municipal pop funding, the Musical University, and a creative economy-specific start-up centre. These institutions play a leading role in the urban region, guiding many other individual actors. In addition to the diverse music scene, there is also a film funding initiative in the region with its own liaison office, serving as a network for the many different actors working in this area.

Nordbaden Film Commission

The Nordbaden Film Commission is a point of contact for all regional filmmakers and national producers interested in filming in the Nordbaden region.

Film Commission Nordbaden

Hafenstrasse 25 – 27
68159 Mannheim
www.filmcommission-
nordbaden.de

Michael Ackermann
+49 621 150281-39
ackermann@filmcommission-
nordbaden.de

Mannheim Music Commission

The Mannheim Music Commission is a coordination office for members of the music economy and an interface between these actors, policy, and administration.

Music Commission Mannheim

Hafenstraße 49
68159 Mannheim
www.startup-mannheim.de

Steffen Baumann
+49 621 397469-33
info@mucom-mannheim.de

Food industry cluster

Traditionally, a large number of companies in the food industry have been headquartered in the Rhein-Neckar region. Viticulture and “Germany’s largest vegetable garden” in the Vorderpfalz area, or Schwetzingen asparagus in Baden, are emblematic of the agricultural producers located in the region. Numerous processing companies, branded companies, and commercial companies are also located along the Rhine and Neckar rivers. In addition to large international groups, the urban region also has a strong mid-sized sector. Companies in the region cover the entire supply chain. Neighbouring industries such as packaging and technology and logistics companies also benefit from this diversity.

food.net:z – Lebensmittelnetzwerk Rhein-Neckar e. V.

food.net:z serves as a network for science and companies of all sizes – from start-ups to multinational groups – from every area of the food industry along the entire supply chain.

food.net:z – Lebensmittelnetzwerk Rhein-Neckar e. V.

Kurfürsten-Anlage 38 – 40
69115 Heidelberg
www.foodnetz.de

Isabel Bergerhausen
+49 6221 522-2510
isabel.bergerhausen@rhein-
neckar-kreis.de

Medical technology cluster

The city of Mannheim and the surrounding region are a hotspot for medical technology and biotechnology within Europe. The medical technology industry in Mannheim already employs over 7,000 people along the entire supply chain – from development and active ingredient production to speciality sales – combined with the pharmaceuticals industry, the sector boasts roughly 14,000 employees. This makes it one of Mannheim's largest industries overall. The cluster is characterised by unique economical and clinical research services and a workforce to meet the needs of expanding medical technology companies.

Mannheim Medical Technology Cluster

The goal of medical technology cluster management is to efficiently integrate research, clinics, and medical technology companies to create a network association.

Mannheim Medical Technology Cluster / Wirtschafts- und Strukturförderung

Rathaus, E5
68159 Mannheim
www.medtech-mannheim.de

Dr. Elmar Bourdon
+49 621 293-2155
elmar.bourdon@mannheim.de

Organic electronics cluster

Leading international companies, universities, and research institutions have come together in the Rhein-Neckar urban region to form the Organic Electronics Forum cluster. Cluster partners from science and the economy cooperate on equal footing to create innovative applications and products in the area of pioneering organic electronic technologies. The cluster focuses on environmentally-friendly energy production using organic photovoltaics, saving energy using organic LEDs and reducing resource usage in producing electronic components such as switches, storage devices, and sensors. The cluster offers unique expertise in the area of printing technology as an inexpensive way to manufacture organic electronic components.

Forum Organic Electronics (FOE)

The FOE focuses on printable organic electronics, a sub-field of electronics that uses materials based on conductive polymers or smaller organic links.

Forum Organic Electronics c/o InnovationLab GmbH

Speyerer Straße 4
69115 Heidelberg
www.innovationlab.de

Dr. Tanja Benedict
+49 6221 5419-109
info@innovationlab.de



Production engineering cluster

The production engineering cluster is characterised by machine and vehicle construction, and has a fairly heterogeneous structure for the region. Leading major companies work closely with regional universities and research institutions to develop new kinds of production systems.

Rhein Main Neckar Automation Region

The automation region brings together service providers and users of automation technology. Its roughly 500 companies and 70 scientists cover the entire spectrum of automation technology.

Rhein Main Neckar Automation Region c/o IHK Darmstadt

Rheinstraße 89
64295 Darmstadt
www.automatisierungsregion.de

Richard Jordan
+49 6151 871-284
jordan@automatisierungsregion.de

Smart Production network

The network is the Rhein-Neckar urban region's regional industry 4.0 cluster initiative. Innovative start-ups, mid-sized production companies, and global leaders innovate hand in hand.

Smart Production network

Rathaus E5
68159 Mannheim
www.smartproduction.de

Georg Pins
+49 621 293-3359
georg.pins@smartproduction.de

Memory systems and smart grids cluster

Companies and scientific institutions from the Rhein-Neckar urban region and surrounding areas work together in the memory systems and smart grids cluster to create innovative solutions for the energy concepts of the future. Cluster partners have collected many years of cooperative experience in projects like LIB2015, Web2Energy or the E-energy projects MOMA and MeRegio. The cooperation and its actors focus specifically on handling all areas of the smart energy grid.

StoREgio Energiespeichersysteme e. V.

StoREgio develops system solutions and business models for using energy storage systems to power electricity, heat, and mobility using renewable energies.

StoREgio Energiespeichersysteme e. V.

Donnersbergweg 1
67059 Ludwigshafen
www.storegio.com

Dr. Peter Eckerle
+49 621 592809-31
peter.eckerle@storegio.com

Environmental technology cluster

With over 600 companies and major research and educational institutions, the environment and energy technology cluster is a key economic player in the region. It is well poised to take a leading position in international competition. In addition to well-developed supply chains, it already offers a high-functioning network of economic, scientific, and policy/administration players. Its fields of excellence include: Energy efficiency in buildings, energy efficiency in industry and environmental and energy concepts for the regions.

“Energy and environment” cluster network

The “Energy and environment” cluster network consists of companies, research institutions and universities from the Rhein-Neckar region working in the fields of energy efficiency and renewable energies.

“Energy and environment” cluster network c/o Metropolregion Rhein-Neckar GmbH

M1 4 – 5
68161 Mannheim
www.m-r-n.com/was-wir-tun/themen-und-projekte/projekte/cluster-netzwerk-energie-und-umwelt

Bernd Kappenstein
+49 621 10708-430
bernd.kappenstein@m-r-n.com

Umweltkompetenzzentrum Rhein-Neckar e. V. (UKOM)

UKOM is the largest enterprise-based non-profit organisation in the Rhein-Neckar European Metropolitan Region (MRN), working at the interface of resource efficiency (through digitisation), environment, and climate protection.

Umweltkompetenzzentrum Rhein-Neckar e. V.

Wieblinger Weg 21
69123 Heidelberg

Dr. Thomas Sterr
+49 6221 6506875
info@ukom.de



Cluster-relevant services – Universities, research and transfer institutions

Institution	Fields
Heidelberg University	The university offers a broad spectrum of disciplines in departments such as the natural sciences, maths and computer science and medicine. Key research areas include molecular and cell biology building blocks and structural and pattern formation in the material world; transfer via “Industry on campus” projects and the research department.
University of Mannheim	Legal, economic, and social sciences.
Koblenz-Landau University	Landau campus, particular focus on natural and environmental sciences, transfer via the president’s office / department A1.
Mannheim University of Applied Sciences	Departments: in particular biotechnology, electrical and communications engineering, IT, mechanical engineering, process and chemical engineering, social sciences, industrial engineering, medical technology (joint institute with the Heidelberg University), design. Transfer via the Institute for Applied Research (IAF), department of research and development, Hochschule Mannheim Transfer gGmbH.
Ludwigshafen am Rhein University of Applied Sciences	College of economics.
University of Applied Sciences, Worms (Rheinland-Pfalz)	Economics, tourism and commerce, computer sciences. Transfer via the Centre for Technology Transfer and Telecommunications (ZTT).
Baden-Württemberg Cooperative State University, Mannheim	The DHBW Mannheim offers a broad range of dual bachelor’s and master’s programmes in the areas of economics, computer sciences, healthcare, engineering and media through a strong partnership with other economic institutions and companies.
Baden-Württemberg Cooperative State University, Mosbach	Business administration, engineering, information technologies and lumber business and wood technology.

Institution	Fields
<p>Popakademie Baden-Württemberg GmbH</p>	<p>The Popakademie Baden-Württemberg (University of Popular Music and Music Business) is a state university for popular music and music business located in Mannheim. Its programmes range from bachelor's degrees in pop music design and music business to master's programmes in popular music and music and creative industries. In addition to its function as a university, the University of Popular Music and Music Business is also a centre of competence for the music business and music scene that handles regional, national, and international projects.</p>
<p>Research and transfer institutions</p>	<p>German Cancer Research Centre (DKFZ) The German Cancer Research Centre (DKFZ) in the town of Helmholtz with transfer via the technology transfer field office.</p> <p>European Laboratory for Molecular Biology (EMBL) The laboratory is a globally leading research lab focused on molecular biology. Transfer is offered via EMBLEM GmbH.</p> <p>Other institutions</p> <ul style="list-style-type: none"> • Medical technology competence centre at the Mannheim University Clinic • Central Institute for Technical Computer Sciences • Mannheim Business School • SRH Heidelberg University of Applied Sciences • East Asian Institute at the Ludwigshafen University of Applied Sciences • European Institute for Telecommunications Research (EURESCOM) • European Media Laboratory GmbH (EML) • Society for Heavy Ion Research in Darmstadt (GSI) • Institut für Energie- und Umweltforschung Heidelberg GmbH (IFEU) • Klaus Tschira Stiftung gGmbH • Centre for Molecular Biology at Heidelberg University (ZMBH) • European Organisation for Molecular Biology (EMBO) <p>Max Planck Society institutions with transfer via Max Planck Innovation GmbH</p> <ul style="list-style-type: none"> • Max Planck Institute for Nuclear Physics • Max Planck Institute for Medical Research • Max Planck Institute for Astronomy <p>Fraunhofer Society institutions</p> <ul style="list-style-type: none"> • FHG project group for automation in medicine and biotechnology (PAMB) <p>Digital Hub Rhein-Neckar GmbH The de:hub for Chemistry and Health – Ludwigshafen/Mannheim is one of twelve competence centre locations of the de:hub ecosystem in Germany, initiated by the Federal Economic Ministry. It promotes innovations and start-ups in the fields of digital chemistry and digital health. The goal of the hub is to connect technological and economic expertise and create a digital network to bring new business models and services to the market. In addition, another goal of the hub is to publicise services for start-ups and new companies in the Rhein-Neckar urban region and to identify and close gaps in the service landscape.</p>



Nordschwarz- zwald



The region

The Calw, Enzkreis and Freudenstadt districts and the city of Pforzheim form the Nordschwarzwald region. Located between the Mittlerer Oberrhein and Stuttgart European Metropolitan region, the region combines sustainable prosperity with a high standard of living. It is characterised by a high percentage of owner-operated small and mid-sized companies.

Strong mid-sized sector and high quality of life

The Nordschwarzwald region has more than 593,000 residents and an area of 2,340 km². Key industries in the region include precision engineering, plastics technology, medical and dental technology, the lumber industry and health and tourism. Building on the regional development concept, which was created as part of an example inter-municipal process, the region sees its heterogeneity and diversified economic and industry structure as an opportunity to create comprehensive, sustainable regional development.

The city of Pforzheim is the industrial hub and centre of the German jewellery and watch industry, located in the northern part of the region. Innovative companies in precision engineering and medical technology are concentrated here, along with major suppliers to the automotive industry and mechanical engineering. The southern districts of Calw and Freudenstadt are characterised by globally leading companies in the areas of mechanical engineering and lumber and plastic technologies.

Over 50% of the Nordschwarzwald region is covered in forests. It is also dominated by service companies from the areas of tourism and health and globally recognised upscale restaurants, such as in Baiersbronn. The Black Forest National Park has been a key driver of structural development in recent years.

Important industries (by number of employees) include:

- The metalworking industry with mechanical engineering and manufacturing metal products

- Vehicle construction with suppliers
- Manufacturers of electrical equipment

In comparison to other regions, the area offers an above average innovative capacity. Its dynamism index, however, places it fourth among the regions.

Innovation index*

Innovation index	27,2	State 38,4
Level index	20,7	State 35,2
Dynamic index	46,7	State 47,8

Employees in the individual sectors**

Production industry	41,1 %	State 35,7 %
Services	58,6 %	State 63,8 %

R&D personnel percentage***

2013	0,9 %	State 2,1 %
2015	1,0 %	State 2,3 %

* Source: Statistical Office of Baden-Württemberg, as of 2016

** Source: Statistical Office of Baden-Württemberg, as of 06/2017

*** Source: Statistical Office of Baden-Württemberg, FTE R&D personnel in relation to FTE employed persons, as of 08/2016

Contact person

Wirtschaftsförderung Nordschwarzwald GmbH
Jochen Protzer
Westliche Karl-Friedrich-Straße 29-31
75172 Pforzheim

Phone: +49 7231 154-3690
E-mail: protzer@nordschwarzwald.de
WWW: nordschwarzwald.de

Clusters and cluster initiatives in the region

Forestry and timber cluster

A large number of small and mid-sized companies, from trade businesses to market-leading mechanical engineering enterprises, make up the distinctive forestry and wood cluster in the Nordschwarzwald region. This cluster is unique in covering the entire supply chain. From companies in primary forestry to innovative timber construction companies and major global manufacturers of highly modern fittings and furnishings, almost every industry sector is represented in the region.

RegioHOLZ Nordschwarzwald

The RegioHOLZ network is a platform for companies in the timber and furnishings industry. Actors from along almost the entire wood supply chain are represented within the cluster initiative.

RegioHOLZ Nordschwarzwald c/o Wirtschaftsförderung Nordschwarzwald GmbH

Westliche Karl-Friedrich-Straße 29-31
75172 Pforzheim
www.nordschwarzwald.de/regioholz.html

Lars Schäfer
+49 7231 154-3692
schaefer@nordschwarzwald.de

Healthcare cluster

The healthcare industry ranges across all the sectors relating to health. Health industry sectors like medical technology, pharmaceuticals and biotechnology as well as health trade or health-related areas like pharmacy, health tourism and wellness, spas and therapeutic baths or sports and nutrition are grouped alongside classic core health services sectors (inpatient and outpatient care and nursing).

Wirtschaftsförderung Nordschwarzwald GmbH

Westliche Karl-Friedrich-Straße 29-31
75172 Pforzheim
www.nordschwarzwald.de

Jochen Protzer
+49 7231 154-3690
protzer@nordschwarzwald.de

Information technology, IT applications / software cluster

The information technology field includes the development, implementation and management of computer-supported information systems. Often, successful usage of corporate software is a key factor in increasing the productivity of other technologies.

IT + Media Network

A municipal initiative of Pforzheim's economics and city marketing services, with the goal of actively supporting and promoting IT and media companies from the Pforzheim economic region.

IT + Media Network c/o Economics and city marketing Pforzheim

Lindenstraße 2
75175 Pforzheim
www.netzwerk-it-medien.de

Kevin Lindauer
+49 7231 39-3572
kevin.lindauer@ws-pforzheim.de

Creative economy cluster

A diverse creative economy has developed in the area based on the jewellery and watch industry. In addition to classic creative economy sectors focused on design, it also covers the field of watches and jewellery.

CREATE! PF

The goal of Create!PF is to promote Pforzheim's creative industry, create and retain jobs and establish the creative economy as a relevant economic factor in the region.

CREATE! PF c/o Economics and city marketing Pforzheim

Emma-Jaeger-Straße 20
75175 Pforzheim
www.emma-pf.de

Almut Benkert
+49 7231 39-3730
almut.benkert@ws-pforzheim.de



Plastics processing cluster

Over 400 primarily small and mid-sized companies in plastics engineering form the plastics processing cluster. The region is home to the entire supply chain, except for plastics manufacturing – from injection machine construction to relevant toolmaking and diverse plastics processing areas to a number of downstream processes like printing, laser finishing or measurement and testing.

INNONET Kunststoff®

INNONET Kunststoff® is a network platform and nexus for the plastics industry in the region and beyond. Over 110 network partners use the platform for professional exchange and cooperation.

INNONET Kunststoff c/o Technologiezentrum Horb GmbH & Co.KG

Geschwister-Scholl-Str. 10
72160 Horb am Neckar
www.innonet-kunststoff.de

Claudia Schlatter
+49 7451 6233-24
schlatter@innonet-kunststoff.de

Precision engineering cluster

Precision engineering – with its focus on metalworking and dental and medical technology – is a key economic sector in the region. It developed from the region's focus on the watch industry and precision mechanics. The term precision engineering encompasses the following technological fields: Stamping technology, forming technology, broaching technology, machining, semi-finished products production, toolmaking and machine building, laser technology, surface technology and metals recycling. Almost the entire metal processing supply chain is represented in the region, including all upstream and downstream supplier sectors.

HOCHFORM – Präzisionstechnik aus Pforzheim

HOCHFORM is a municipal initiative. Economics and city marketing Pforzheim designed to support metalworking and precision engineering companies in the Pforzheim region.

HOCHFORM - Precision Engineering c/o Economics and city marketing Pforzheim

Lindenstraße 2
75175 Pforzheim
www.hochform-pforzheim.de

komm. Oliver Reitz
+49 7231 39-2903
info@ws-pforzheim.de

Cluster-relevant services – Universities, research and transfer institutions

Institution	Fields
Pforzheim University of Applied Sciences	<p>Technical fields: Bachelor: Electrical engineering / computer science, technical informatics, mechanical engineering / product development, mechanical engineering / production technology and management, mechatronics, medical technology, industrial engineering / general management, industrial engineering / global process management, industrial engineering / international management. Master: Business administration and engineering, embedded systems, information systems, product development.</p> <p>Economic fields: Bachelor: Purchasing and logistics / international business / marketing / international marketing / marketing communication and advertising / market research and consumer psychology / media management and advertising psychology / HR management / resource efficiency management / controlling / finance and accounting / taxes and auditing / business informatics – management & IT / economic law. Master: Auditing and taxation / auditing / business and law / controlling / finance & accounting / creative communication & brand management / human resources management / information systems / international management MBA / innovative service marketing / life cycle & sustainability.</p> <p>Design fields: Bachelor: Industrial design / fashion / jewellery / visual communication / accessory design / transportation design / intermedial design Master: Creative Direction / Transportation Design.</p> <p>Knowledge transfer is handled by the IAF – Institute for Applied Research, the STI – Jewellery Technology Institute, the INEC – Institute for Industrial Ecology, the Institute for HR Research, the IoS³ – Institute for Smart Systems and Services, the IWWT – Institute for Materials and Material Technologies, and over ten companies in the Steinbeis Network.</p>
Bad Liebenzell International University of Applied Sciences	<p>Bachelor fields: Protestant theology / theology / social work in an intercultural context / theology / pedagogy in an intercultural context. Master fields: Protestant theology / integrative advising / academic contributions from the Liebenzell Institute for Missiological, Religious, Intercultural & Social Studies (LIMRIS).</p>
SRS University of Economics and Media Calw	<p>Bachelor fields: Business administration / marketing management (from 9/2015) / media and communication management / cultural management (from 9/2015) and controlling. Master fields: Media Management & Public Communication and stART up – Arts, Culture & Entrepreneurship. Applied research in multiple research projects and research clusters.</p>



Institution	Fields
<p>Baden-Württemberg Cooperative State University, Stuttgart, Horb campus</p>	<p>Bachelor fields in the technology area: Computer sciences / electrical engineering / mechanical engineering / mechatronics / industrial engineering / technical management. The individual programmes include the focal areas of electromobility / design / development and production / supply and energy management / plastics processing / vehicle testing technology / modern database technology and big data analytics and international technical sales / technical logistics and process management.</p> <p>Masters fields in the technology area: Electrical engineering / computer sciences / integrated engineering / mechanical engineering / industrial engineering / automotive system engineering.</p> <p>Transfer via institutions in the Steinbeis Network: Institute for Plastic and Development Technology IKET and the Steinbeis Transfer Centre for Management Training SZT-MGMT.</p>
<p>Schwarzwald campus of Stuttgart University</p>	<p>With the completion of the Schwarzwald campus building (planned for July, 2019) in Freudenstadt, the Schwarzwald campus will have highly modern facilities and infrastructure to handle production-related challenges in digitisation through practical expertise. The production laboratory will be joined by training and co-working spaces focused on collaborative work and knowledge transmission related to digital topics.</p> <p>In addition, the Schwarzwald campus supports spin-off companies and start-ups. It will work in close partnerships with established mid-sized companies from the Schwarzwald region to identify innovation challenges and systematically create start-ups housed in the Schwarzwald campus and supported by its services.</p>
<p>Research and transfer institutions</p>	<p>IHK Schwarzwald Management Academy The services of the Schwarzwald Management Academy are directed towards people focused on their corporate responsibilities. The open seminar programme focuses on the areas of communication, personality and management, and strategies and processes. It will also offer in-house seminars and a fall academy.</p> <p>IHK Freudenstadt Environmental Academy Current, practical qualifications in the areas of environmental protection, radiation protection, occupational safety and energy that fulfil legal specifications and market demands.</p> <p>IHK Baden-Württemberg Tourism Academy in Freudenstadt The Baden-Württemberg Tourism Academy creates a systematic year-round dialogue across companies and across the region. This dialogue is open to managers from wellness and tourism, the hotel and restaurant industry, the travel industry, and service and production companies in tourism regions.</p> <p>SKZ The Plastics Centre Knowledge transfer for training and educating specialists in plastics processing takes place at the Horb location. Processing thermoplastic semi-finished products and the injection molding areas, in particular, play a key role.</p>





Südlicher Oberrhein



The region

The Südlicher Oberrhein region is 4,062 km² in size and home to roughly 1,075,000 residents. It is part of the Trina-tional Oberrhein urban region. Due to its proximity to France and Switzerland, it houses regional cluster structures that extend beyond national borders. The regional economy is characterised by a balanced diversity of industries and mid-sized companies.

Collaboration across national borders

The economy of the region is characterised more heavily by the service sector and less by production than Baden-Württemberg as a whole. However, the percentage of corporate service providers is slightly above the state average. The regional economy is characterised by a balanced diversity of industries and mid-sized companies. It offers numerous concentrations of companies in areas like publishing, transportation, computer sciences and research, in particular in the service sector. In addition, it is also home to many cross-regional and international structural political projects. The region offers an impressive specialisation and high level of innovative capacity in the healthcare industry.

Key industries (based on the number of employees subject to social insurance contributions, without trade, construction or the public sector) include:

- The metalworking industry with mechanical engineering and manufacturing metal products,
- Recruiting and
- Information services

The innovative capacity of the Südlicher Oberrhein region is in the lower third of the 12 regions of Baden-Württemberg. The region has succeeded in elevating itself to 10th place through its level of innovation, and its dynamism index has increased sharply, putting it in first place.

Innovation index*

Innovation index	29,6	State 38,4
Level index	22,0	State 35,2
Dynamic index	52,7	State 47,8

Employees in the individual sectors**

Production industry	31,8 %	State 35,7 %
Services	67,7 %	State 63,8 %

R&D personnel percentage***

2013	0,6 %	State 2,1 %
2015	0,6 %	State 2,3 %

* Source: Statistical Office of Baden-Württemberg, as of 2016

** Source: Statistical Office of Baden-Württemberg, as of 06/2017

*** Source: Statistical Office of Baden-Württemberg, FTE R&D personnel in relation to FTE employed persons, as of 08/2016

Contact person

Freiburg Wirtschaft Touristik und Messe GmbH & Co. KG
Dr. Michael Richter
Neuer Messplatz 3
79108 Freiburg im Breisgau

Phone: +49 761 3881-1201
E-mail: michael.richter@fwtm.de
WWW: fwtm.de

Clusters and cluster initiatives in the region



Automotive cluster

The automotive industry includes supply, production, and services as well as all areas relevant to the automotive sector. Automotive technologies are used, for instance, in vehicles, agricultural machinery, ships, and aeroplanes.

Automotive_NETZ

The Automotive_NETZ serves as a network for mid-sized industrial production companies in Schwarzwald and beyond.

Automotive_NETZ
im wvib **Wirtschaftsverband Industrieller Unternehmen**
Baden e. V.

Merzhauserstr. 118
79100 Freiburg im Breisgau
www.wvib.de/erfahrungsaustausch/cluster/automotive-netz

Dr.-Ing. Christoph Gerrit
+49 761 4567-200
christoph@wvib.de



Biotechnology cluster

The cluster has three focal areas: Freiburg, which offers many different scientific institutions, young spin-offs and established companies, the Basel region with its international pharmaceutical groups, as well as the Strasbourg region. Research, development and manufacturing of biotechnical products for the life sciences field, in particular the pharmaceutical sector and agricultural area, are key in the region.

BioRegio Freiburg / BioValley

BioRegio Freiburg has been a partner in the trinational life sciences "BioValley" cluster initiative since 1996. The initiative links biotechnological areas of potential throughout the urban centres of Freiburg, Basel and Strasbourg.

BioRegio Freiburg c/o Technologiestiftung BioMed

Neuer Messplatz 3
79108 Freiburg im Breisgau
www.bioregion-freiburg.de

Dr. Michael Richter
+49 761 3881-1201
michael.richter@fwtm.de

Forestry and timber cluster

Wood is used as a raw material, construction material, and building material, and - as a renewable material - is being used in more and more novel applications. The timber supply chain is especially well developed in Hoch-Schwarzwald (high Black Forest) and in the Südlicher Oberrhein and Schwarzwald-Baar regions: From raw materials to sawmills, finishing, wooden mechanical engineering, special vehicle construction and energy-saving prefabricated house construction.

proHolz Schwarzwald

The cluster initiative was developed to increase the competitiveness of the forestry and timber industries. It focuses on advising companies involved in construction on using wood as a construction material.

proHolz Schwarzwald

Munzinger Straße 11
79111 Freiburg im Breisgau
www.pro-holz-schwarzwald.com

Johannes Haug
+49 761 3843692-0
info@pro-holz-schwarzwald.com

Healthcare cluster

This cluster extends beyond the Südlicher Oberrhein region and includes Schwarzwald and parts of the Oberrhein (Upper Rhine) area in Schwarzwald, including the cities of Karlsruhe, Baden-Baden, Offenburg and Freiburg. The cluster is undergoing a positive shift in the kinds of services it offers – from classic spa tourism to health and wellness tourism. This shift has international implications.

HealthRegion Freiburg e. V.

Since 2012, this cross-sector and cross-industry cluster initiative has worked towards the goal of increasing the innovative capacity and competitiveness of the complementary areas of healthcare and tourism.

HealthRegion Freiburg e. V.

Neuer Messplatz 3
79108 Freiburg im Breisgau
www.healthregion-freiburg.de

Nadja Oback
+49 761 3881- 1510
nadja.oback@fwtm.de





Information technology / corporate software cluster

Almost every job in the commercial and production sectors requires IT support in some way, either directly or indirectly. Hardware, software, IT services and training are especially important. A large number of companies offering these products and services are located in the Südlicher Oberrhein region.

Freiburg Wirtschaft Touristik und Messe GmbH & Co. KG

Neuer Messplatz 3
79108 Freiburg im Breisgau
www.fwtm.de

Dr. Michael Richter
+49 761 3881-1201
michael.richter@fwtm.de



Creative economy cluster

Over nine percent of all employees in the Südlicher Oberrhein region work in media and IT companies between Achern and Weil am Rhein. The creative economy in the Offenburg / Ortenau area is centred around the media company Hubert Burda – which specialises in the areas of publishing, printing and direct marketing. The IT and communication fields and digitisation are key parts of this specialisation. Printing and publishing companies such as Haufe-Lexware, Herder and Rombach and major software manufacturers like United Planet are located in the university city of Freiburg.

Freiburg Wirtschaft Touristik und Messe GmbH & Co. KG

Neuer Messplatz 3
79108 Freiburg im Breisgau
www.fwtm.de

Dr. Michael Richter
+49 761 3881-1201
michael.richter@fwtm.de

Medical technology cluster

The Baden-Württemberg medical technology industry specialises in developing and producing innovative surgical instruments, orthopaedic solutions and diagnostic systems. Its close proximity to the healthcare field offers many different development opportunities, and is a key foundation for practical technological solutions in the areas of medicine, health, and social services.

Medi_NETZ

Selected companies with outstanding professional expertise in their fields meet regularly to exchange experiences and discuss ideas.

Medi_NETZ
im **wvib** Wirtschaftsverband Industrieller Unternehmen
Baden e. V.

Merzhauserstr. 118
79100 Freiburg im Breisgau
[www.wvib.de/erfahrungsaustausch/
cluster/medi-netz](http://www.wvib.de/erfahrungsaustausch/cluster/medi-netz)

Edgar Jäger
+49 761 4567-230
jaeger@wvib.de

Microsystems engineering cluster

This cluster is driven heavily by scientific companies, and its central focus is shaped by the Institute for Microsystems Engineering (IMTEK) at the University of Freiburg. Many companies associated with the cluster have been in existence for decades. The cluster focuses on producing sensors, measurement and control technology, and creating life sciences applications.

Freiburg Wirtschaft Touristik und Messe GmbH & Co. KG

Neuer Messplatz 3
79108 Freiburg im Breisgau
www.fwtm.de

Dr. Michael Richter
+49 761 3881-1201
michael.richter@fwtm.de



Environmental technology cluster

This field of specialisation is strongly characterised by concrete applications of resource-saving energy production, specifically the solar sector (thermal and voltaic) in the Freiburg region. It is focused heavily on demand. Many different service providers such as architects and consulting offices specialise in this area. The Fraunhofer Institute for Solar Energy Systems (ISE) in the region is Europe's largest solar research institution. The new Freiburg Institute for Sustainable Technical Systems (INATECH) offers expertise for industrial applications in areas like sustainable materials, energy systems and resilience.

Cluster Green City Freiburg

The cluster initiative for the Freiburg economic region, initiated in 2009, serves as a network for regional companies and institutions in the fields of environment and solar technology.

Freiburg Wirtschaft Touristik und Messe GmbH & Co. KG

Neuer Messplatz 3
79108 Freiburg im Breisgau
www.greencity-cluster.de

Florian Fletschinger
+49 761 3881-1213
florian.fletschinger@fwtm.de

“innoEFF” innovation and efficiency cluster

The innoEFF connects companies, universities, and research institutions in the Oberrhein area to create a fertile environment for innovation in efficiency technologies.

Klimapartner Oberrhein

Hanferstraße 6
79108 Freiburg im Breisgau
www.innoeff.de

Dr. Fabian Burggraf
+49 761 151098-21
fabian.burggraf@klimaschutz-oberrhein.de

Cluster-relevant services – Universities, research and transfer institutions

Einrichtung	Tätigkeitsgebiete
Albert-Ludwigs University Freiburg (incl. the University Clinic)	<p>Technical and natural sciences training fields: Applied informatics, bioinformatics, biology, chemistry, computer sciences, intelligent embedded microsystems, medicine, molecular medicine, microsystems engineering, pharmaceuticals, physics, environmental natural sciences, forestry, forest management and environment, European forestry, dental medicine. Selected institutions: Institute for Microsystems Technology, Institute for Computer Sciences, Freiburg Material Research Centre, Institute for Sustainable Technical Systems, Centres for Bio Systems Analysis, Renewable Energies, Neuroscience, Biological Signal Studies, Interactive and Bio-Inspired Technologies, Sustainability Intensive Training Centre – alongside the local Fraunhofer institutes – Central Agency of Technology Transfer, with additional transfer via experts and centres in the Steinbeis Network.</p>
College of Public Administration Kehl	<p>German-French master's programme in cluster management and regional network management in cooperation with the University of Strasbourg.</p>
Offenburg University of Applied Sciences	<p>Departments: Business administration & industrial engineering, electrical engineering & computer sciences, mechanical engineering & process engineering, media & information. Transfer via the Institute for Applied Research and experts and centres from the Steinbeis Network.</p>
Research and transfer institutions	<p>Baden-Württemberg Forestry Testing and Research Institution This Freiburg institution is the central organisation for development in the forestry and timber industry, in particular in forest management.</p> <p>State Viticulture Institution Testing and research organisation for viticulture and winemaking.</p> <p>European Competence and Research Centre Cluster Management The EKFC deals with current questions in cluster and network research.</p> <p>Fraunhofer Society institutions</p> <ul style="list-style-type: none"> • Fraunhofer Institute for Solar Energy Systems ISE • Fraunhofer Institute for Applied Solid State Physics IAF • Fraunhofer Institute for Mechanics of Materials IWM • Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach Institute, EMI • Fraunhofer Institute for Physical Measurement Techniques IPM <p>Hahn-Schickard Society</p> <ul style="list-style-type: none"> • Institute for Microanalytic Systems <p>Max Planck Society Institutes</p> <ul style="list-style-type: none"> • Max Planck Institute for Immunobiology and Epigenetics • Working Group in Fire Ecology - Global Fire Monitoring Centre (GFMC) of the Max Planck Institute for Chemistry (Mainz)



Schwarzwald-Baar-Heuberg



The region

The Schwarzwald-Baar-Heuberg region is characterised by a density of industries that well exceeds the state average, dominated by mid-sized companies. Companies located in the region have received awards and prizes in global competitions.

Awards and prizes from all over the world

The Schwarzwald-Baar-Heuberg region covers 2,529 km² and has approx. 484,000 residents. The region includes the districts of Rottweil and Tuttlingen and the Schwarzwald-Baar area. The Schwarzwald-Baar-Heuberg region stands out for having the highest percentage of employees in production companies in all of Baden-Württemberg. Overall, the region's economy has an industrial density far above the state average and is dominated by mid-sized companies.

The economic history of industry in the region stretches back to the first half of the 19th century. The region underwent a distinctive structural shift, allowing existing cluster structures in areas like medical technology to become more deeply established.

Key industries (based on the number of employees subject to social insurance contributions, without trade, construction or the public sector) include:

- Medical technology,
- Microtechnology,
- Plastics engineering,
- Metalworking and
- Machine and system construction

Innovation index*		
Innovation index	32,0	State 38,4
Level index	27,8	State 35,2
Dynamic index	44,8	State 47,8

Employees in the individual sectors**		
Production industry	51,6 %	State 35,7 %
Services	48,1 %	State 63,8 %

FuE-Personalintensität***		
2013	1,6 %	State 2,1 %
2015	1,7 %	State 2,3 %

* Source: Statistical Office of Baden-Württemberg, as of 2016

** Source: Statistical Office of Baden-Württemberg, as of 06/2017

*** Source: Statistical Office of Baden-Württemberg, FTE R&D personnel in relation to FTE employed persons, as of 08/2016

Contact person

IHK Schwarzwald-Baar-Heuberg
Thomas Wolf
Romäusring 4
78050 Villingen-Schwenningen

Phone: +49 7721 922-515
E-mail: wolf@vs.ihk.de
WWW: ihk-sbh.de

Clusters and cluster initiatives in the region



Automotive cluster

Approximately 1,000 companies in the automotive innovation area are headquartered in the Schwarzwald-Baar-Heuberg region. One unique feature is the region's local concentration of turned component manufacturers (Heuberg). The area represents a regional competence centre in turned part production which originated in the 1960s. The spectrum of products made by automotive suppliers in the region ranges from mechanically produced components to complex electronic systems. The industry employs roughly 60,000 workers.

Machining cluster of the GVD Gemeinnützige Vereinigung der Drehteilehersteller e. V.

The machining technology cluster initiative commits itself to the common professional interests and benefit of its member companies and to secure a sustainable future for the industry.

Machining cluster of the GVD Gemeinnützige Vereinigung der Drehteilehersteller e. V.

Daimlerstraße 9
78559 Gosheim
www.cluster-zerspanungstechnik.de

Ingo Hell
+49 7426 5298-0
info@cluster-zerspanungstechnik.de

TechnologyMountains e. V.

TechnologyMountains turns companies into peak performers, ensuring companies go further by working together. Over 280 companies have joined TechnologyMountains to take advantage of its networking services.

TechnologyMountains e. V. c/o IHK Schwarzwald-Baar-Heuberg

Romäusring 4
78050 Villingen-Schwenningen
www.technologymountains.de

Thomas Wolf
+49 7721 922-511
wolf@technologymountains.de

Precision engineering / microtechnology / microsystems technology cluster

A tradition of over one hundred years and links between many different companies have created a cluster shaped by highly competitive production enterprises. This cluster, which today includes over 3,000 companies, originated in the watch industry in and around Villingen-Schwenningen and Schramberg, which for many years dominated the global watch market. The industry employed its precision engineering expertise in microtechnology, a field which today includes hundreds of companies producing micro and precision components. Its core focus is on micro-assembly and micro-manufacturing. Production takes place in clean rooms or clean room-like conditions, using highly modern microsystems engineering technologies.

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78050 Villingen-Schwenningen
www.technologymountains.de

Thomas Wolf
+49 7721 922-511
wolf@technologymountains.de



Healthcare cluster

The healthcare industry is highly important and well represented within the Schwarzwald-Baar-Heuberg region. Overall, the IHK Schwarzwald-Baar-Heuberg serves and advises almost 1,000 member companies from the healthcare field. Healthcare employs 28,327 workers subject to social security contributions in the area, 15.4 percent of all employees in the region. The healthcare industry includes 1,515 entities – including public sector bodies. This corresponds to 11.6 percent of all companies in the Schwarzwald-Baar-Heuberg region. This makes it a key economic area.

Schwarzwald-Baar Health Network

The core purpose of this cluster initiative is to facilitate cross-industry networking between actors in the healthcare industry in Schwarzwald-Baar, in order to promote and reinforce the healthcare sector.

Schwarzwald-Baar Health Network

Herdstraße 4
78050 Villingen-Schwenningen
www.gesundheitsnetzwerk-sbk.de

Dr. Jochen Früh
+49 7721 913-7187
info@gesundheitsnetzwerk-sbk.de

Medical technology cluster

Tuttlingen was known for the manufacture of and trade in medical technology products even in the 19th century. Today, over 400 companies with a strongly international focus characterise the structure of the cluster and the location. Notably, over 90% of these are small and mid-sized companies. The medical technology cluster is based on the production of surgical appliances, including many different surgical instruments and implants. The innovative range of products offered by this cluster include systems for minimally invasive surgery. Microtechnology, mechatronics, plastic technology, automation and new textile technologies also play an increasingly important role.

MedicalMountains GmbH

Headquartered in Tuttlingen, the goal of MedicalMountains GmbH's cluster initiative is to create a network for medical technology companies, utilise their joint strengths, and encourage cooperation.

MedicalMountains GmbH

Katharinenstraße 2
78532 Tuttlingen
www.medicalmountains.de

Yvonne Glienke
+49 7461 969721-1
glienke@medicalmountains.de

New materials and surfaces cluster (Plastics engineering)

The Schwarzwald-Baar-Heuberg region boasts a high density of injection molding technology companies. In addition to providers focused exclusively on injection molding, in particular in the automotive, precision mechanics, and medical technology sectors, there are numerous companies which originated in the metals industry but which process more and more plastics today. Accordingly, the region offers a high level of expertise in hybrid technologies. The high quality of the cluster is underscored by projects introducing new kinds of materials like ceramic components into the injection molding process, utilising innovative coating processes, and efficiently applying hot runner technology.

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Romäusring 4
78050 Villingen-Schwenningen
www.technologymountains.de

Thomas Wolf
+49 7721 922-511
wolf@technologymountains.de

Production engineering cluster

The Schwarzwald-Baar-Heuberg industrial region, centred around Gosheim / Wehingen, has the highest density of machining companies in the country. This sector utilises the entire spectrum of metal processing, including highly modern multi-spindle CNC machines and laser technology. The industries involved here are primarily related to the automotive sector, in particular the areas of powertrain and tooth systems, mechanical engineering and toolmaking. Many companies have joined together to create an interest group. Through this collaboration, the cluster sets new standards in economical process design with high cutting performance and an energy and resource-efficient design of machining processes.

Machining cluster of the GVD Gemeinnützige Vereinigung der Drehteilehersteller e. V.

The machining technology cluster initiative commits itself to the common professional interests and benefit of its member companies and to secure a sustainable future for the industry.

GVD Gemeinnützige Vereinigung der Drehteilehersteller e. V.

Daimlerstraße 9
78559 Gosheim
www.cluster-zerspanungstechnik.de

Ingo Hell
+49 7426 5298-0
info@cluster-zerspanungstechnik.de

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TechnologyMountains e. V. c/o IHK Schwarzwald-Baar-Heuberg

Romäusring 4
78050 Villingen-Schwenningen
www.technologymountains.de

Thomas Wolf
+49 7721 922-511
wolf@technologymountains.de



Cluster-relevant services – Universities, research and transfer institutions

Institution	Fields
Furtwangen University of Applied Sciences	<p>The Furtwangen University of Applied Sciences (HFU) has roughly 6,200 students at its locations in Furtwangen, Schwenningen and Tuttlingen, making it one of Baden-Württemberg's largest universities for applied sciences. Whether students are interested in a bachelor's or master's program, continued professional education or a doctorate – the HFU offers programmes in the competence areas of engineering, computer sciences, business informatics, industrial engineering, media, international economics and health/life sciences. Applied research is a key element of teaching at the HFU. Scientific findings from applied research are the basis for innovation at the HFU, and ideally can be utilised for innovative processes and products through cooperation with companies.</p>
State University of Music Trossingen	<p>The Trossingen State University of Music works to uphold German musical universities' commitment to excellence and serves a broad cultural mission in the EUREGIO Bodensee and in southeastern Baden-Württemberg. With its international teaching staff, student body and partner institutions, as well as innovative projects, it bridges the gaps between tradition and the globalised art of the 21st century. The university underscores its reputation as a creative innovator and developer of forward-thinking artistic and pedagogical formats, in particular through its unique, interdisciplinary and internationally connected "MUSIC - DESIGN - PERFORMANCE" state centre, a kind of university 4.0 institution. The HFU is a central partner in the field of digital media and is firmly anchored in the Schwarzwald-Baar-Heuberg region. Other key research areas include ancient music, sonic research, musical pedagogy and musical education.</p> <p>The spectrum of academic programmes includes all three cycles, and the university also accepts doctoral students.</p>
Baden-Württemberg Cooperative State University Villingen-Schwenningen	<p>The Villingen-Schwenningen DHBW has 2,500 students. In cooperation with 950 selected companies and social institutions, it offers 17 accredited bachelor's degrees integrating practical experience, as well as master's programmes in economics and social services. The vocational school was converted into the Baden-Württemberg Cooperative State University in 2009 in response to its excellent development. Specific structural features of the former vocational academies were retained, such as equal participation among cooperative partners and a programme design based on alternating and coordinated theoretical and practical phases. In addition, the university is legally mandated to promote cooperative research.</p>

Institution	Fields
<p>Tuttlingen International Business School</p>	<p>Major medical technology companies have been involved in the joint master's programme with Furtwangen University of Applied Sciences since 2003. The programme provides students with an MBA degree. These postgraduate studies, with a focus on medical devices & healthcare management provides current management expertise at the highest level as well as the soft skills necessary for upwardly oriented employees in the medical technology and biomedical technology industry who want to expand their expertise in international management and marketing.</p>
<p>St. Georgener Technologiezentrum GmbH</p>	<p>The St. Georgener Technologiezentrum GmbH (abbreviated: TZ), founded in 1985, is one of the state's oldest technology centres. The TZ focuses its activities on promoting start-ups and new businesses offering innovative products and services. The majority of companies in the TZ work in the IT field. The TZ is the headquarters of the Virtual Dimension Centre TZ St. Georgen w.V. (abbreviated: VDC), one of the largest virtual and augmented reality networks in Germany. Its digital education and training laboratory (abbreviated: DBT laboratory) was named an outstanding location in the land of ideas in 2016.</p> <p>The "Digital Hub" call for funding applications by the Ministry of Economics, Labour and Housing selected the draft project submitted by the TZ – serving as consortium manager – as its winner in early 2018. The TZ plans to use the award to establish an incubator for start-up founders in the region and create specialised training rooms for augmented and virtual reality at the VDC. The TZ sees itself as a regional networker and local development agency, offering companies involved in the TZ a broad range of services and – if necessary – free business and financial advising. TZ promotes networking by holding regular events. These include entrepreneur evenings, presentations by the VDC and in-house professional events (lectures and trade fairs) in the 3D printing field (3D days).</p>



Institution	Fields
<p>Research and transfer institutions</p>	<p>Hahn-Schickard-Gesellschaft für angewandte Forschung e. V. Hahn-Schickard develops smart products with microsystems technology: from initial idea to production – across industries. The research and development service provider offers institutes in three Baden-Württemberg locations: Stuttgart, Villingen-Schwenningen and Freiburg. Through close collaboration with industry, Hahn-Schickard creates innovative products and technologies in the fields of sensors and actuators, systems integration, cyber-physical systems, lab on a chip and analytics, microelectronics, attachment and connection technology, microassembly and reliability. Its services also include small and medium-sized manufacturing series and transfer to large-scale series production.</p> <p>Kunststoff-Institut Südwest GmbH & Co. KG (KISW) The Kunststoff-Institut Südwest (Southwestern Plastics Institute) was initiated by 20 regional companies, the IHK Schwarzwald-Baar-Heuberg and the Plastics Institute of Lüdenscheid. It focuses on the areas of hybrid technology, precision and microtechnology and medical technology. It supports companies in selecting, developing, and optimising products, tools and process sequences throughout the entire field of plastics engineering. Its range of services concentrate on increasing the quality and economic efficiency of the plastics industry. Modern seminar rooms and practical exercises in an in-house technology centre and laboratory provide further practical links. The laboratory offers modern equipment and is available for material and damage analysis. The fully-equipped technology centre with fully automated injection molding machines is used for tests, samples, pilot series, and training.</p>





Hochrhein- Bodensee



The region

The Hochrhein-Bodensee region has roughly 674,860 residents. It is shaped by intensive interconnections with neighbouring regions in France, Switzerland, Austria and Liechtenstein characterised by both direct economic interdependencies and research and university cooperations. This also results in international collaboration in the region, for instance in the Basel Trinational Eurodistrict (TEB), the Hochrhein Commission, the Randen Commission and the Bodensee four-country region.

Cooperation with France and Switzerland

The Waldshut and Lörrach districts are home to intensive cooperation along the Hochrhein. Collaboration within the Bodensee four-country region is key to the Konstanz district. Regional clusters also work internationally. The Bodensee cluster initiative (CLIB) serves as a joint cluster platform. The chemical-pharmaceutical and biotechnology sectors offer outstanding innovative capacity.

The economy of the Hochrhein-Bodensee region is shaped primarily by production and the service sector, similar to the state of Baden-Württemberg itself. However, the percentage of service providers is lower than the state average.

Key industries include:

- The metalworking industry with mechanical engineering, metals production and processing (aluminium) and manufacturing metal products,
- The food industry with production of nutritional products and feeds and
- Biotechnology.

Innovation index*		
Innovation index	26,4	State 38,4
Level index	21,1	State 35,2
Dynamic index	42,4	State 47,8

Employees in the individual sectors**		
Production industry	33,7 %	State 35,7 %
Services	65,6 %	State 63,8 %

R&D personnel percentage***		
2013	1,2 %	State 2,1 %
2015	1,1 %	State 2,3 %

* Source: Statistical Office of Baden-Württemberg, as of 2016
** Source: Statistical Office of Baden-Württemberg, as of 06/2017
*** Source: Statistical Office of Baden-Württemberg, FTE R&D personnel in relation to FTE employed persons, as of 08/2016

Contact person

Wirtschaftsregion Südwest GmbH
Alexander Maas
Marie-Curie-Straße 8
79539 Lörrach

Phone: +49 7621 5500-150
E-mail: info@wsw.eu
WWW: wsw.eu

Clusters and cluster initiatives in the region

Aluminium processing cluster

The large number of waterways along the Hochrhein (High Rhine), the Bodensee and the Singen region were the reason aluminium manufacturing and processing companies moved to this area over 100 years ago. Aluminium processing locations are found all along the Hochrhein, from Weil am Rhein in the west to Singen and Kreuzlingen in the east, as well as a concentration in the Wutach valley. The Swiss area of Neuhausen and Schaffhausen also shares in this regional speciality today. The municipality of Wutöschingen is one local centre. Activities in the field centre around processing, finishing and refining aluminium to create semi-finished products and components as well as final goods.

Hochrhein Aluminium Forum

Hochrhein is the cradle of the modern aluminium industry. Companies in the region form a competence centre for aluminium which can handle almost any aluminium related demand.

Wirtschaftsregion Südwest GmbH – Geschäftsstelle Waldshut

Gartenstraße 7
79761 Waldshut-Tiengen
www.aluminiumforum-hochrhein.de

Kai Müller
+49 7751 86-2603
info@aluminiumforum-hochrhein.de

Automotive cluster

The automotive industry in the region includes several global players as well as numerous small and mid-sized companies, many of which are specialised niche providers. The region also boasts manufacturers (primarily commercial vehicle manufacturers). These serve practically every major production company around the world. Companies produce a wide variety of products – the expertise in the region is so broad, companies could manufacture an entire vehicle there! – the expertise in the region is so broad, companies could manufacture an entire vehicle there! The area tends to produce higher-value components in smaller quantities for the luxury segment. Frequently, companies are not linked with one another directly, but instead via OEMs (original equipment manufacturers) or higher-level suppliers. The basis for a regional supply chain – and two cluster initiatives – do, however, exist.

Wirtschaftsregion Südwest GmbH

Marie-Curie-Straße 8
79539 Lörrach
www.wsw.eu

Alexander Maas
+49 7621 5500-150
info@wsw.eu

Biotechnology cluster

The Bodensee region is characterised by a large number of research and production companies in the fields of pharmaceuticals, biotechnology, diagnostics, medical technology, analytics, medicine and bioinformatics, nutrition, and environmental protection. These include many young, technology-focused enterprises as well as established companies like the pharmaceutical enterprises Takeda GmbH or GATC Biotech AG. Multiple institutions like the University of Konstanz, the connected Biotechnology Institute of Thurgau, and the Albstadt-Sigmaringen University of Applied Sciences engage in basic life sciences research. The cluster works across national borders in Bodensee four-country region, with partners in Switzerland and Austria.

BioLAGO e. V. – the health network

BioLAGO is the international health network of the Bodensee four-country region (D, A, CH, FL). The network connects economics and science for innovation.

BioLAGO e. V. – the health network

Byk-Gulden-Straße 2
78467 Konstanz
www.biolago.org

Andreas Baur
+49 7531 921 525-0
andreas.baur@biolago.org

Chemistry and pharmaceuticals cluster

The chemical and pharmaceutical industry is located primarily in the districts of Lörrach and Waldshut along the Hochrhein, as well as across the border into northwest Switzerland. In the Hochrhein region it is represented by a large number of attractive companies offering secure, modern, and forward-thinking jobs and trainee opportunities. These include many global market leaders, both mid-sized and large companies. A selection of companies in Hochrhein reads like a “who’s who” of the industry. Thanks to a high percentage of research and development, the sector ensures it can continue its positive development in the future.

Wirtschaftsregion Südwest GmbH

Marie-Curie-Straße 8
79539 Lörrach
www.wsw.eu

Alexander Maas
+49 7621 5500-150
info@wsw.eu



Energy cluster

The energy industry is one of the most important industrial sectors in the world. In addition to fossil fuels like oil, gas, and coal, renewable energies are becoming ever more important. Baden-Württemberg is a leader in Germany, especially in fuel technologies. The Hochrhein-Bodensee region promotes the development of renewable energy.

SolarLAGO – smart energy network

SolarLAGO is a cluster initiative formed by actors with expertise in “smart energy” solutions in the field of photovoltaics, as well as in adjacent technologies in the Konstanz and Bodensee region. The cluster also connects internationally with companies in Switzerland and Austria.

SolarLAGO – smart energy network

Rudolf-Diesel-Str. 15
78467 Konstanz
www.solarlago.de

Dr. Kristian Peter
+49 7531 36183-0
kristian.peter@isc-konstanz.de

Information technology, IT applications / corporate software cluster

The Hochrhein-Bodensee regional cluster covers all of southern Baden-Württemberg, and integrates areas to the west (France), south (Switzerland) and east (Bavaria / Austria) as well. Thanks to this unique location, the cluster is closely connected to its partners, cluster initiatives, networks and institutions from the entire Hochrhein-Bodensee region, as well as to international partners in Switzerland and Austria. It is characterised by a large number of innovative small and mid-sized companies.

connect Dreiländereck (Three-country region) – The IT network of the Lörrach and Waldshut region

connect Dreiländereck is a partner network of regional actors from the Lörrach and Waldshut districts. It brings together IT companies, user companies, start-ups, institutions, and young professionals.

connect Dreiländereck c/o Wirtschaftsregion Südwest GmbH

Marie-Curie-Str. 8
79539 Lörrach
www.connect-dreilaendereck.com

Gudrun Gempp
+49 7628 910-700
cluster@connect-dreilaendereck.com

cyberLAGO e. V. – digital competence network

cyberLAGO is the international competence network for digital economy and IT in the Bodensee region, consisting of established companies, start-ups, universities, and institutions.

cyberLAGO e. V. – digital competence network

Blarerstraße 56
78462 Konstanz
www.cyberlago.net

Tobias Fauth
+49 7531 584-8190
tobias.fauth@cyberlago.net

Nanotechnology cluster

The cluster covers a region including not only the Konstanz district but also the districts of Schwarzwald-Baar, Tuttlingen, Waldshut, Sigmaringen and the Bodensee region. It also operates internationally, spanning the Bodensee four-country region including Liechtenstein, Switzerland and Austria. Thematically, “nano” technologies cross various sectors, and are closely associated with the regional focus areas of medicine, metal processing, automotive, biotechnology, and plastics.

Nano-Zentrum Euregio Bodensee e. V.

The NEB facilitates increased and accelerated transfer of research results to the economy of the Bodensee European region.

Nano-Zentrum Euregio Bodensee e. V.

Universitätsstr. 10
78464 Konstanz
www.neb-konstanz.de

Wolfgang Müller
+49 7531 88-3541
mueller@neb-konstanz.de

Packaging technology cluster

This cluster is based on established companies along a wide-ranging supply chain. It focuses on areas both south and north of the Rhine and Bodensee. The German side is characterised primarily by packaging companies in the food and pharmaceuticals industries and manufacturers of packaging materials (flexible packaging). The International Packaging Institute (IPI) is located in Schaffhausen, and serves as an international competence centre and central platform for the packaging industry. The IPI trains students for a Masters of Engineering in Packaging Technology in conjunction with the HTWG (Konstanz Applied University of Technology, Economics and Design). The packaging technology cluster is also concentrated in the Singen area. It includes both packaging machine manufacturers, packaging material producers, packaging manufacturers and packing companies (such as Maggi Singen) as well as relevant suppliers and multiple universities along the supply chain.

Packaging technology cluster – International Packaging Institute (IPI)

IPI is a training, network and service centre for the packaging industry, with the goal of training specialists and managers and facilitating innovation and technology transfer. IPI operates CleverPack, a unique web-based knowledge and network platform.

Bodensee Standort Marketing GmbH

Max-Stromeyer-Straße 116
78467 Konstanz
www.clusterinitiative-bodensee.de

Christina Wechsel
+49 7531 800-1143
christina.wechsel@b-sm.com



Cluster-relevant services – Universities, research and transfer institutions

Institution	Fields
University of Basel	The university offers both natural sciences and medical programmes. Both departments together form a research centre for life sciences, with numerous research groups directly associated with the BioValley initiative.
University of Konstanz	Technical and natural sciences fields: Biological sciences, life sciences, chemistry, computer science, physics. Transfer also via the Centre for Applied Photonics (CAP) and ten companies in Steinbeis transfer centres.
Konstanz University of Applied Sciences – Technology, Economics and Design (HTWG)	Cluster-related training programmes include mechanical engineering, environmental and process engineering, electrical engineering, computer sciences, informatics and communication design. Transfer also via the Institute for Applied Research (IAF).
Baden-Württemberg Cooperative State University, Lörrach	Selected technical and economic training programmes: Biosystems informatics, computer sciences, mechatronics, mechanical engineering, industrial engineering, business administration and industry, business administration and tourism, international business management, information systems. Trinational programmes in cooperation with the Northwest Switzerland University of Applied Sciences and the Université de Haute-Alsace.
Research and transfer institutions	<p>Fraunhofer Institute for High Speed Dynamics The Freiburg Fraunhofer Institute for High Speed Dynamics (Ernst-Mach Institute, EMI) and its field office in Efringen-Kirchen are relevant to the regional cluster.</p> <p>International Solar Energy Research Centre Konstanz e. V. The International Solar Energy Research Centre Konstanz e. V. researches and develops crystalline silicon solar cells. Transfer is also provided via the NEB e.V. (Nano Centre Euregio Bodensee) and another ten companies in the Steinbeis Network (connected to the University of Konstanz, the Konstanz University of Applied Sciences - Technology, Economics and Design, and the Baden-Württemberg Cooperative State University Lörrach).</p> <p>Paul Scherrer Institute, Villigen/CH The Paul Scherrer Institute is the largest research centre for natural sciences and engineering in Switzerland. It carries out basic and applied research in the 3 key areas of matter and materials, energy and environment, and health and humanity.</p>



10



Neckar-Alb



The region

The Neckar-Alb region includes the districts of Reutlingen, Tübingen and the Zollernalb area. The cities of Reutlingen and Tübingen, located approx. 40 km south of the state capital of Stuttgart, together form the urban centre of the region considered a southern segment of the Stuttgart European metropolitan region.

Key role in the automotive, mechanical engineering and technical textiles area

Around 696,120 residents live in the Neckar-Alb region. The automotive and mechanical engineering cluster, which plays a key role for the Neckar-Alb region, must be seen as connected to the Stuttgart region. Its location south of the exhibition hall and airport, between the A8 and A81, offers the advantage of centralised infrastructure. The textile, medical technology and biotechnology clusters are interrelated and focused heavily on the region of Neckar-Alb and southern neighbouring regions. Four large universities ensure intensive knowledge transfer. The broadly diversified economic structure helps integrating the cluster with partners across other regions.

The Neckar-Alb region is one of just a few space research locations in Germany. The European Space Agency Business Incubation Centre was created as a highly innovative and pioneering project that positively impacts other economic areas as well.

Innovation index*

Innovation index	35,2	State 38,4
Level index	31,9	State 35,2
Dynamic index	45,0	State 47,8

Employees in the individual sectors**

Production industry	38,1 %	State 35,7 %
Services	61,5 %	State 63,8 %

R&D personnel percentage***

2013	1,5 %	State 2,1 %
2015	1,5 %	State 2,3 %

* Source: Statistical Office of Baden-Württemberg, as of 2016

** Source: Statistical Office of Baden-Württemberg, as of 06/2017

*** Source: Statistical Office of Baden-Württemberg, FTE R&D personnel in relation to FTE employed persons, as of 08/2016

Contact person

Industrie- und Handelskammer Reutlingen
Dr. Markus Nawroth
Postfach 1944
72762 Reutlingen

Phone: +49 7121 201-185
E-mail: nawroth@reutlingen.ihk.de
WWW: reutlingen.ihk.de



Clusters and cluster initiatives in the region



Automotive cluster

Thanks to its close collaborations with OEMs (original equipment manufacturers) and automotive plants in the metropolitan region (30-45 minute drive), the region is a preferred location for supplier companies. The companies, which are primarily small or mid-sized, as well as the traditional locations of large plants with over 1,000 employees, benefit from the high level of innovative capacity with close cooperations along the supply chain.

IHK Network Automotive

This cluster initiative represents 52 of 220 automotive suppliers. In addition, it has a sustainable and independently financed management structure.

Reutlingen Chamber of Industry and Trade

PO Box 1944
72762 Reutlingen
www.netzwerk-automotive.de

Dr. Markus Nawroth
+49 7121 201-185
nawroth@reutlingen.ihk.de



Information technology, IT applications / software cluster

Digitisation and networking are key factors for growth and development. The IT and telecommunications industry is key to both of these: Especially in industries like the automotive, machine and systems engineering sectors, information and communication solutions are essential to the supply chain. This trend will only increase in the future. IT and communications applications and products will become even more prominent in every area of the economy and society.

IHK Network IT, TC & Multimedia

The IHK Network IT, TC & Multimedia serves as a network for the IT and telecommunications industry in Neckar-Alb. It provides a forum for exchanging ideas, cooperation, and a joint presentation platform.

IHK Network IT, TC & Multimedia

PO Box 1944
72709 Reutlingen
www.it-neckar-alb.de

Dr. Kirstin Schreiber
+49 7121 201-275
schreiber@reutlingen.ihk.de

Medical technology cluster

Internationally connected medical technology companies, together with the Tübingen University Clinic and other development institutions, form the core of the medical technology cluster in the Neckar-Alb region. It is centrally located within Baden-Württemberg, embedded between the Stuttgart economic area in the north and the Tuttlingen medical technology region in the south. The cluster creates innovative products in business-focused research centres, in the Hechingen Medical Valley, and through technology exchange with local key industries.

Medical Valley Hechingen e. V.

Network of medical technology companies, suppliers, service providers and universities to promote innovation and attract MedTech and BioTech companies and facilitate education and training in these industries.

Medical Valley Hechingen e. V.

Im Nasswasen 10
72379 Hechingen
www.medical-valley-hechingen.de

Dr. Heiko Zimmermann
+ 49 171 218 0800
heiko.zimmermann@medical-valley-hechingen.de

Neckar-Alb Medical technology

Over 70 medical technology companies, the Tübingen University Clinic, and specialised research institutions form the core of the Neckar-Alb medical technology cluster initiative.

Medical technology Neckar-Alb c/o IHK Reutlingen

PO Box 1944
72709 Reutlingen
www.ihkrt.de/medizintechnik

Dr. Stefan Engelhard
+49 7121 201-158
engelhard@reutlingen.ihk.de

Textiles and clothing cluster

This traditional cluster, characterised by mid-sized companies, is highly competitive. The region offers the entire supply chain in this sector: Technical textiles, textile machine construction, textile chemistry, linens and clothing textiles and internationally popular fashion outlets.

Neckar-Alb Technical Textiles Cluster (techtex)

The Neckar-Alb technical textiles cluster serves as a network for over 50 companies and R&D organisations, offering joint trade fair stands (such as Techtex), working groups, and informational events.

Neckar-Alb Technical Textiles Cluster (techtex) c/o Institute for Knowledge Management and Knowledge Transfer (IHK-IWW) IHK Reutlingen

PO Box 1944
72709 Reutlingen
www.cluster-technische-textilien.de

Dr. Stefan Engelhard
+49 7121 201-158
engelhard@reutlingen.ihk.de

Cluster-relevant services – Universities, research and transfer institutions

Institution	Fields
University of Tübingen	<p>Departments: Medical department and Tübingen University Clinic, maths and natural sciences department (classic: Maths, physics, chemistry, pharmaceuticals, biology, geo-sciences, computer science; specialised: Biochemistry, bioinformatics, geo-ecology), legal department, economics and social sciences department, philosophy and literature, Protestant theology, Catholic theology, Islamic theology.</p> <p>Interdisciplinary institutes:</p> <ul style="list-style-type: none"> • Interdisciplinary Institute for Cell Biology (IFIZ) • Interdisciplinary Institute for Microbiology and Infection Medicine (IMIT) • Interdisciplinary Institute for Biochemistry (IFIB) • Institute for Natural Sciences Archaeology (INA) <p>Transfer: Technology transfer office of the University of Tübingen and a number of companies in the Steinbeis Network run by university professors (including the Steinbeis Transfer Institute Steinbeis Global Institute Tübingen).</p>
Reutlingen University of Applied Sciences	<p>Departments: Applied chemistry, ESB business school, computer sciences, technology, textiles & design.</p> <p>Transfer via two Institutes of Applied Research and seven companies in the Steinbeis Network.</p>
Albstadt - Sigmaringen University of Applied Sciences	<p>Departments: Business science and management, engineering, computer sciences, life sciences.</p> <p>Transfer via the Institute for Applied Research (IAF), Technology Workshop Albstatt and InnoCamp Sigmaringen.</p>
Rottenburg University of Applied Sciences	<p>Departments: Forestry, timber industry, renewable energy, sustainable regional management, water resource management, resource efficiency in building and sustainable energy competence (SENCE).</p> <p>Transfer via two companies in the Steinbeis Network and via the Institute for Applied Research (IAF).</p>

Institution	Fields
<p>Research and transfer institutions</p>	<p>Institutes at the Albstadt-Sigmaringen University of Applied Sciences These institutes are organised for applied research, and represent focal areas within the university:</p> <ul style="list-style-type: none"> • FIW – Professional Institute for Engineering and Economics • InViTe – Institute for in vitro Testing Systems • KEIM – Institute for Knowledge Engineering and Information Management • IES – Institute for Real Time Systems and Software Technology • IRGP – Institute for Computer-Aided Product Manufacturing • IT-GRC – Institute for Governance, Risk and Compliance <p>These institutes are organised under the umbrella of the Institute for Applied Research, with focal areas in:</p> <ul style="list-style-type: none"> • DITI – Digitisation, IT security, industry 4.0 • NESP – Sustainable development, smart materials and products • GEB – Health, nutrition, biomedicine <p>Rottenburg Institute for Applied Research Key research areas: Forestry and timber industry – processes, technologies, supply chain</p> <ul style="list-style-type: none"> • Biomass – Logistics and conversion • Management and development of agricultural areas • Climate change – Impacts and adaptive strategies <p>Natural Sciences and Medical Institute (NMI) at Tübingen University in Reutlingen The NMI concentrates on business-focused contract research and development at the interface of bio and material sciences.</p> <p>Other institutions:</p> <ul style="list-style-type: none"> • Max Planck Institute for Biology • Max Planck Institute for Biological Cybernetics • Friedrich Mieschner Laboratory for Biological Working Groups in the Max Planck Society <p>In addition, the German Institute of Textile and Fibre Research (DITF) in Denkendorf is another important player. It is located in the Stuttgart region, but has its roots in Reutlingen as well and is key to the textile cluster.</p> <p>Reutlingen Research Institute at Reutlingen University of Applied Sciences As a central scientific institution of the university where all research and development activities are centred. Key research areas:</p> <ul style="list-style-type: none"> • Power electronics and processes for efficient energy conversion and storage • Market and distribution processes in economics and logistics • Product development and smart processes





Donau-Iller



The region

The Baden-Württemberg regional section of the Donau-Iller cross-state planning region includes the Alb-Donau district, the Biberach district, and the Ulm urban area. It covers a territory of roughly 2,887 km² (total approx. 5,460 km²) and houses around 513,480 residents (only in the Baden-Württemberg section of the region). The region is centred around the Baden-Württemberg city of Ulm and the Bavarian city of Neu-Ulm. The economy is heavily characterised by mid-sized companies and includes many family businesses as well. Numerous global market leaders are also headquartered here. The region's industrial strengths (including mechanical engineering and pharmaceuticals) are shaped by an outstanding mix of industries.

Industry mix and global market leaders are key

The regional clusters and cluster initiatives primarily work across international borders. In contrast to the state of Baden-Württemberg as a whole, the region's economy is characterised more by production. Because of this, the service sector overall makes up a lower percentage of the economy than the state average.

Key industries (based on the number of employees subject to social insurance contributions, without trade, construction or the public sector) include:

- The metalworking industry with mechanical engineering and manufacturing metal products,
- Commercial vehicle construction with suppliers,
- Manufacturing of pharmaceutical products and
- logistics.

In comparison to the other regions, the innovative capacity of the Baden-Württemberg section of the region is excellent. Both the above-average level of innovation (ranked second) and the above-average dynamism in innovation contribute to this excellent standing. Highly innovative companies and a well-developed research landscape made up of

universities and non-university based research institutions are key to maintaining this high level.

Innovation index*

Innovation index	40,4	State 38,4
Level index	37,4	State 35,2
Dynamic index	49,2	State 47,8

Employees in the individual sectors**

Production industry	39,6 %	State 35,7 %
Services	59,8 %	State 63,8 %

R&D personnel percentage***

2013	2,4 %	State 2,1 %
2015	2,5 %	State 2,3 %

* Source: Statistical Office of Baden-Württemberg, as of 2016

** Source: Statistical Office of Baden-Württemberg, as of 06/2017

*** Source: Statistical Office of Baden-Württemberg, FTE R&D personnel in relation to FTE employed persons, as of 08/2016

Contact person

Industrie- und Handelskammer Ulm
Jonas Pürckhauer
Olgastraße 97-101
89073 Ulm

Phone: +49 731 173-169
E-mail: puerckhauer@ulm.ihk.de
WWW: ulm.ihk24.de

Clusters and cluster initiatives in the region

Automotive cluster

This is a well-developed cluster with potential for further development. It encompasses not only the centre of Ulm / Neu-Ulm but also the entire area served by the IHK Ulm and the Bavarian districts of Neu-Ulm and Günzburg, as well as parts of the IHK Schwaben region. Large swaths of the commercial vehicle construction supply chain are represented in this region – from commercial vehicle manufacturers themselves to rank 1, 2, and 3 suppliers and relevant engineering service providers. In addition to the unique concentration of six OEMs (original equipment manufacturers), which cover different subsections of the commercial vehicle industry, regional universities with specialised automotive competence centres also play a key role.

Cluster Nutzfahrzeuge Schwaben e. V.

The Nutzfahrzeuge Schwaben e.V. Cluster is a platform for the commercial and specialised vehicle industry and for suppliers, service providers and science.

Cluster Nutzfahrzeuge Schwaben (CNS) e. V.

Olgastraße 95
89073 Ulm
www.cns-ulm.com

Lothar Riesenegger
+49 731 173-245
cns.riesenegger@ulm.ihk.de

Biotechnology cluster

This cluster is an example of a cross-regional and cross-state geographical expansion. It includes the “Ulm innovation region” and the hubs of Ulm / Neu-Ulm as well as the two districts of Alb-Donau and Neu-Ulm and the upper Swabian districts of Biberach and Ravensburg; in the north, it even extends to the district of Heidenheim in the Ostwürttemberg region. This is a central European location for research, development and production in this competence area, in particular in the biopharmaceuticals sector. The region has an outstanding potential for growth in this area.

BioRegionUlm e. V.

The BioRegionUlm is the central location for development and production of biopharmaceuticals. It serves as a broker and interface between science and business and a platform for interdisciplinary dialogue.

BioRegionUlm e. V.

Olgastraße 95-101
89073 Ulm
www.bioregionulm.de

Walter Pytlik
+49 731 173-225
pytlik@ulm.ihk.de

Logistics and intralogistics cluster

The Donau-Iller region is one of Baden-Württemberg's core logistics regions. The Ulm area is characterised by the A7 and A8 intersection, offering handling logistics that make it a key freight transport hub. Accordingly, the region includes not only the new freight transport centre north of Ulm with a "Kombiverkehr" (KV) terminal for combined freight transport, but also many different freight logistics and freight forwarding companies with warehouse and freight handling capacities. Various studies prove that the industry has developed to an above-average extent in the region, which is also characterised by a high level of dynamism.

Logistik-Cluster Schwaben (LCS) e. V.

The Schwaben logistics cluster has 90 members and was founded in May of 2011 to promote the logistics sector.

Logistik-Cluster Schwaben e. V. c/o IHK Ulm

Olgastraße 95-101
89073 Ulm
www.logistik-schwaben.de

Ingrid Eibner
+49 731 173-285
info@logistik-schwaben.de



Cluster-relevant services – Universities, research and transfer institutions

Institution	Fields
Ulm University	Selected technical, natural sciences, and economic fields: Electrical engineering, computer sciences, information systems technology, media informatics, molecular medicine, biology, biochemistry, business and chemistry, physics, business and physics; in addition, the fields of medicine and dental medicine and the Institute for Laser Technologies in Medicine and Metrology and the Ulm Centre for Scientific Computing.
Ulm University of Applied Sciences	Selected technical and economic training programmes: Vehicle technology, vehicle electronics, industrial electronics, mechanical engineering, mechatronics, medical technology, communications engineering, production engineering, industrial engineering, systems engineering and management. In addition, the university has cooperative programmes with Neu-Ulm University of Applied Sciences, in which students can train in industrial engineering or industrial engineering with a focus on logistics.
Neu-Ulm University of Applied Sciences	Selected business fields: Automotive information management, business administration and healthcare, business administration for doctors, management for healthcare and nursing professions, "Logistics" competence centre, "Networked health" competence centre.
Biberach University of Applied Sciences	Selected training fields: Pharmaceutical biotechnology, industrial biotechnology, business administration, project management. In addition, the Biberach University of Applied Sciences is also home to the Institute for Applied Biotechnology.

Institution	Fields
<p>Research and transfer institutions</p>	<p>Helmholtz Institute Ulm (HIU) The Helmholtz Institute Ulm (HIU) is part of the Helmholtz community. The Karlsruhe Institute for Technology (KIT) is the founder and sponsor of the HIU, and created the institute as a member of the Helmholtz community in cooperation with Ulm University. The German Aerospace Centre (DLR) and Baden-Württemberg Centre for Solar Energy and Hydrogen Research (ZSW) are two other strong partners. Researchers at the four partner facilities combine their expertise in research on electrochemical energy storage under the umbrella of the HIU.</p> <p>Institute for Applied Biotechnology (IAB) The IAB, headquartered in Biberach, offers opportunities for biotechnological research in publicly funded projects and contract research projects. Such research takes place both in collaboration with industry and with national and international universities. The institute's core area of expertise is in biopharmaceutical manufacturing processes and products for industrial (white) biotechnology.</p> <p>Institute for Laser Technologies in Medicine and Metrology (ILM) This institute, headquartered in Ulm, works to transfer knowledge in the areas of medicine and metrology.</p> <p>Ulm Centre for Scientific Computing (UZWR) The UZWR is an interdisciplinary institution of Ulm University specialised in application-oriented questions from science and economics. These questions are answered using modern numerical methods (= scientific computing).</p> <p>Centre for Solar Energy and Hydrogen Research The ZSW is engaged in applied research in the renewable energy field at its Stuttgart and Ulm locations. Its research ranges from thin film photovoltaics to renewable energy sources and battery research. Current key research areas include increasing efficiency in thin film photovoltaics (world record for CIS solar cells), the "electricity to gas" project, fuel cell systems and material research in lithium-ion batteries. Transfer to the Ulm location is also handled via 20 companies from the Steinbeis network.</p>



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Bodensee- Oberschwaben



The region

The Bodensee-Oberschwaben region is located at the far southeastern corner of the state of Baden-Württemberg, and consists of the three districts of Ravensburg, Sigmaringen and Bodensee. Roughly 625,000 people live here. From a historical standpoint, development of the local technology-focused clusters began when Count Zeppelin founded Luftschiffbau Zeppelin GmbH in Friedrichshafen in 1908. The aerospace industry is still an outstanding key industry in the region today. In addition, Bodensee-Oberschwaben is a popular international tourism and health region.

It all started with Zeppelin

In contrast to the state of Baden-Württemberg as a whole, the region's economy is characterised by an above-average focus on production. Because of this, the service sector overall makes up a lower percentage of the economy than the state average.

The region has a strong industrial and business core in the urban and regional centre of Friedrichshafen-Ravensburg-Weingarten. There are also important companies in its more rural areas. Their strong development over the last 100 years has always taken place in line with nature.

Key industries (based on the number of employees subject to social insurance contributions, without trade, construction or the public sector) include:

- The metalworking industry with mechanical engineering and manufacturing metal products,
- Vehicle construction with suppliers, and
- Manufacturers of electrical equipment.

In comparison to other regions, this area offers slightly below average innovative capacity. This is primarily due to the different innovative strengths and structures of the districts. While the Bodensee district has achieved a very high level

of innovation and is considered one of the most innovative districts, the Sigmaringen district has a very high dynamic index.

Innovation index*

Innovation index	33,4	State 38,4
Level index	32,6	State 35,2
Dynamic index	35,7	State 47,8

Employees in the individual sectors**

Production industry	40,8 %	State 35,7 %
Services	58,4 %	State 63,8 %

R&D personnel percentage***

2013	2,2 %	State 2,1 %
2015	2,3 %	State 2,3 %

* Source: Statistical Office of Baden-Württemberg, as of 2016

** Source: Statistical Office of Baden-Württemberg, as of 06/2017

*** Source: Statistical Office of Baden-Württemberg, FTE R&D personnel in relation to FTE employed persons, as of 08/2016

Contact person

Wirtschaftsförderung Bodenseekreis GmbH (WFB)
Benedikt Otte
Leutholdstraße 30
88045 Friedrichshafen

Phone: +49 7541 385-880
E-mail: info@wf-bodenseekreis.de
WWW: wf-bodenseekreis.de

Clusters and cluster initiatives in the region

Automotive / vehicle construction cluster

The cluster is centred around two large companies in drive and chassis technology, which are key players on the global market. Activities in hybrid and electrical drives and in vehicle electronics and software are also increasing. A large number of patent applications are filed in this area. In addition to three caravan manufacturers/outfitters, the commercial and special vehicle sector is also important. The cluster's supplier landscape is characterised by numerous small and mid-sized companies, for instance in engineering. In general, engineering is closely associated with the automotive, mechanical engineering and aerospace clusters.

Wirtschaftsförderung Bodenseekreis GmbH (WFB)

Leutholdstraße 30
88045 Friedrichshafen
www.wf-bodenseekreis.de

Benedikt Otte
+49 7541 385 880
info@wf-bodenseekreis

Healthcare cluster

The cluster is characterised by tourism around the Bodensee (Lake Constance) and by a large number of wellness spas and thermal baths and wellness and rehabilitation clinics, in addition to numerous nursing homes and disabled services. The supply chain is highly diversified, ranging from standardised social services to exclusive wellness and health tourism.

Wirtschaftsförderung Bodenseekreis GmbH (WFB)

Leutholdstraße 30
88045 Friedrichshafen
www.wf-bodenseekreis.de

Benedikt Otte
+49 7541 385 880
info@wf-bodenseekreis

Production engineering cluster

The production engineering and mechanical engineering cluster includes companies offering innovative solutions for a variety of applications. The companies within this cluster have international sales markets. The areas of mechatronics, automation technology and information technology are becoming more and more important in machine and system controlling. In general, production engineering / mechanical engineering is closely associated with the automotive, mechanical engineering and aerospace clusters.

Wirtschaftsförderung Bodenseekreis GmbH (WFB)

Leutholdstraße 30
88045 Friedrichshafen
www.wf-bodenseekreis.de

Benedikt Otte
+49 7541 385 880
info@wf-bodenseekreis

Forestry and timber cluster

The forestry and timber cluster in Allgäu-Oberschwaben is shaped by the high importance of forestry and wood in the Bodensee-Oberschwaben region. The cluster includes a variety of companies along the timber supply chain cooperating with other institutions like associations, federations, universities, municipalities, political actors, and funding programmes.

Forst und Holz Allgäu-Oberschwaben

Forst und Holz Allgäu-Oberschwaben is a voluntary collaboration between companies, municipalities owning forested lands, and associations covering the entire timber processing chain.

Forst und Holz Allgäu-Oberschwaben c/o WIR GmbH

Karlsstraße 6
88299 Leutkirch im Allgäu
www.forst-und-holz-allgaeu-
oberschwaben.de

Andreas Morlok
+49 7561 9820-6344
forstundholz@allgaeu-ober-
schwaben.net

Aerospace cluster

The cluster was created in and around Friedrichshafen in the early 20th century when Count Ferdinand Zeppelin began building airships and Claude Dornier built the first metal aeroplane. In 1962, the Dornier company created a space travel division. Today, this work is continued by an Airbus Defence and Space site. Numerous supplier companies in satellite construction and aeroplane construction have been founded over the past decades. The cluster focuses heavily on research and development, with not only companies but also local universities and scientific institutions becoming more engaged in this sector in the past few years. Aerospace is typically closely associated with the automotive, mechanical engineering and general engineering clusters.

BodenseeAIRea

The BodenseeAIRea aerospace cluster includes numerous companies and project partners. It focuses on the topics of networking and exchanging information.

BodenseeAIRea c/o Wirtschaftsförderung Bodenseekreis GmbH (WFB)

Heiligenbreite 34
88662 Überlingen
www.bodenseeairea.de

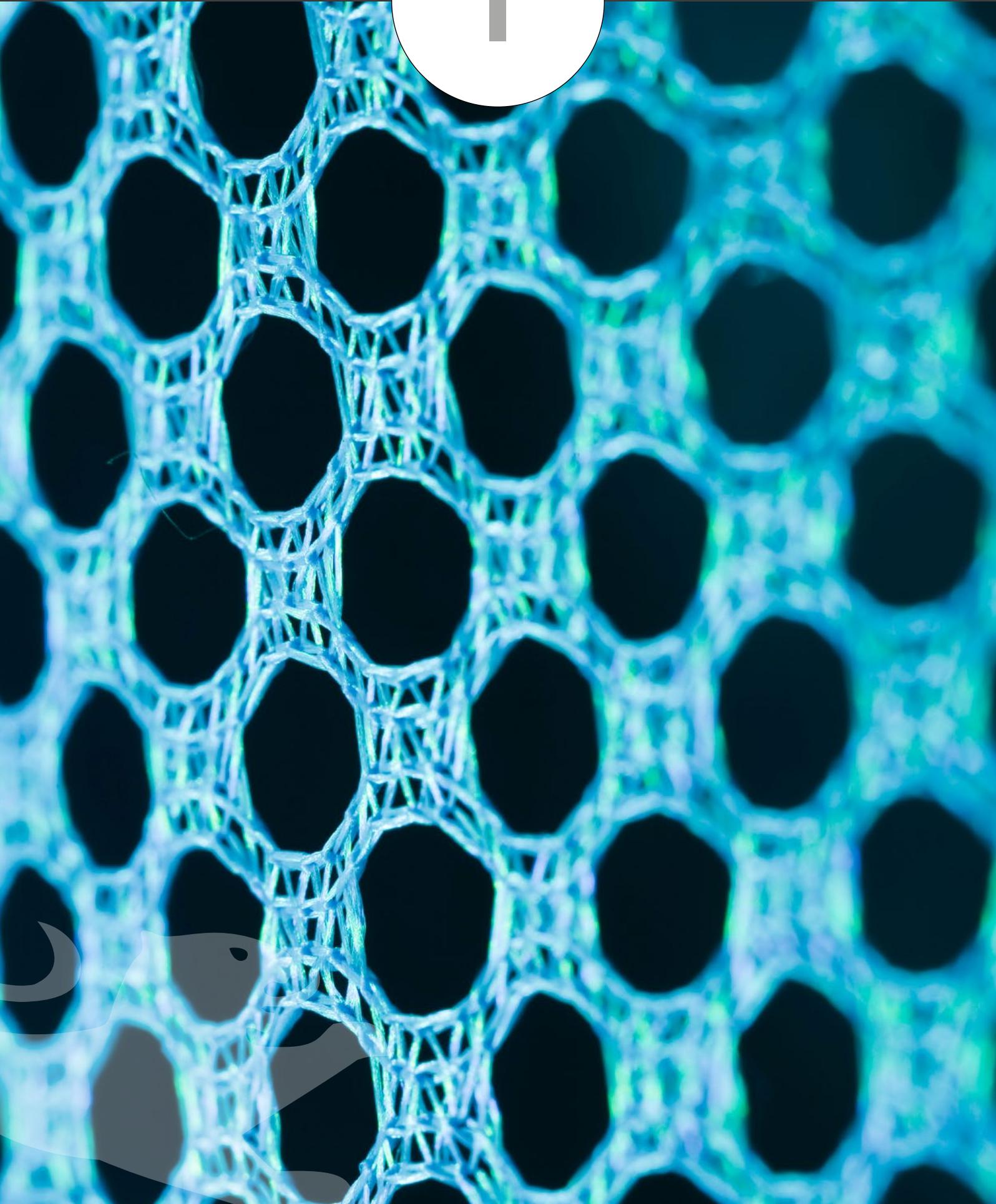
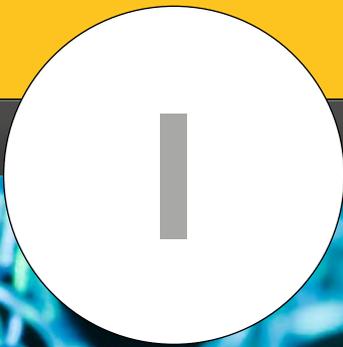
Marian Duram
+49 7551 9471-938
duram@wf-bodenseekreis.de



Cluster-relevant services – Universities, research and transfer institutions

Einrichtung	Tätigkeitsgebiete
Zeppelin University, Friedrichshafen	Chairs, institutes and centres in industrial engineering, cultural sciences, state and social sciences and interdisciplinary research.
Ravensburg-Weingarten University of Applied Sciences	Departments of electrical engineering & computer sciences, mechanical engineering, technology & management, social work, healthcare & nursing, Institute for Applied Research (IAF).
Albstadt - Sigmaringen University of Applied Sciences	Departments of engineering, computer science / informatics, life sciences and business and computer science; Institute for Applied Research (IAF).
Baden-Württemberg Cooperative State University, Ravensburg with campus in Friedrichshafen	Department of economics in Ravensburg, department of technology in Friedrichshafen; Institute for continued training, knowledge and technology transfer (IWT).
Natural Sciences Technical Academy (NTA) Prof. Dr. Grübler gGmbH – State recognised technical university and professional college, Isny	Programmes in chemistry, pharmaceutical chemistry, physics - engineering and computer sciences.
Steinbeis	Steinbeis Business Academy (of Steinbeis University Berlin) with locations in Überlingen and Friedrichshafen: Dual studies programmes in industrial engineering; various Steinbeis transfer companies.





State-wide and cross-regional networks

AFBW – Allianz Faserbasierte Werkstoffe Baden-Württemberg e. V.

Fibre-based materials are the materials of the future. AFBW helps create them - across industries, across the state, and sustainably.

AFBW – Allianz Faserbasierte Werkstoffe Baden-Württemberg e. V.

Kernerstraße 59
70182 Stuttgart
www.afbw.eu

Ulrike Möller
+49 711 2105-012
ulrike.moeller@afbw.eu

AKZ Baden-Württemberg e. V.

The AKZ Baden-Württemberg e.V. is a state-wide network of mid-sized family businesses in Baden-Württemberg. It supports companies with information, consulting and communication.

AKZ Baden-Württemberg e. V. c/o PROFILMETALL GmbH

Wagnerstraße 1
72145 Hirrlingen
www.akz-online.de

Dipl. Ing. Manfred Roth
+49 7478 9293-0
akz@profilmetall.de

automotive-bw

The state-wide network automotive-bw is a collaboration between regional cluster initiatives with a focus on the automotive industry.

RKW Baden-Württemberg GmbH

Königstraße 49
70173 Stuttgart
www.automotive-bw.de

Dr. Albrecht Fridrich
+49 711-22998-0
info@automotive-bw.de

Baden-Württemberg: Connected e. V. (bwcon, Geschäftszentrale Stuttgart)

bwcon is the leading private economic initiative promoting Baden-Württemberg as an innovative high-tech location with offices in Stuttgart, Freiburg, Horb and Villingen-Schwenningen.

Baden-Württemberg: Connected e. V. (bwcon)

Seyfferstraße 34
70197 Stuttgart
www.bwcon.de

Dr. Jürgen Jähnert
+49 711 18421-601
jaehnert@bwcon.de



BIOPRO Baden-Württemberg GmbH

BIOPRO Baden-Württemberg GmbH is the state organisation for bioeconomics and biotechnology, the pharmaceuticals industry and medical technology (healthcare industry).

BIOPRO Baden-Württemberg GmbH	
Breitscheidstraße 10 70174 Stuttgart www.bio-pro.de	Prof. Dr. Ralf Kindervater +49 711 21818-500 info@bio-pro.de

bw-construction GbR

The construction network of trade companies, planners and engineers helps tap into interesting markets and provides a platform for exchanging ideas and developing solutions.

bw-construction GbR	
Heilbronner Straße 43 70191 Stuttgart www.bw-construction.de	Jürgen Schäfer +49 711 1657-280 js@bw-construction.de

Cluster Brennstoffzelle BW

The Cluster Brennstoffzelle BW cluster promotes the industrialisation of mobile and stationary fuel cell applications in Baden-Württemberg.

Cluster Brennstoffzelle BW c/o e-mobil BW GmbH	
Leuschnerstraße 45 70176 Stuttgart https://www.e-mobilbw.de/de/aufgaben/cluster-wasserstoff-brennstoffzellentechnologie.html	Dr. Manuel C. Schaloske +49 711 892385-16 manuel.schaloske@e-mobilbw.de

Cluster Elektromobilität Süd-West

The Cluster Elektromobilität Süd-West is a cooperation between automotive manufacturers, system suppliers and mid-sized companies and research institutions.

Cluster Elektromobilität Süd-West c/o e-mobil BW GmbH	
Leuschnerstraße 45 70176 Stuttgart www.emobil-sw.de	Anja Krätschmer +49 711 892385-13 anja.kraetschmer@e-mobilbw.de

e-mobil BW GmbH – Baden-Württemberg State Agency for New Mobility Solutions and Automotive

e-mobil BW is helping to shape the transformation to automated, networked and electric mobility through a pro-technology network of partners from business, science, and the public sector.

e-mobil BW GmbH	
Leuschnerstraße 45 70176 Stuttgart www.e-mobilbw.de	Franz Loogen +49 711 892385-0 info@e-mobilbw.de

ena – european network architecture e. V.

ena, european network architecture, stands for responsible building. ena is a network of over 50 major architects, professional planners, manufacturers, and service providers.

ena – european network architecture e. V.	
Hauptstraße 30 76524 Baden-Baden www.ena.ag	Thomas Lux +49 7221 9928-72 mail@ena.ag

Forum Luft- und Raumfahrt Baden-Württemberg e. V. (LR BW)

The LR BW is the link in the aerospace industry between business, science, and political decision-makers and other social groups.

Forum Luft- und Raumfahrt e. V.

Gerhard-Koch-Straße 2-4
73760 Ostfildern
www.lrbw.de

Christopher Busch
+49 711 327325-35
info@lrbw.de

Intralogistik-Netzwerk in Baden-Württemberg e. V.

The Intralogistics Network deals primarily with knowledge and technology transfer, funding science and research in intralogistics and adjacent fields, ensuring the exchange of information and promoting education and training in the sector.

Intralogistik-Netzwerk in Baden-Württemberg e. V.

Sombartstraße 33
70565 Stuttgart
www.intralogistik-bw.de

Kristin Wedekind
+49 711 78237-173
info@intralogistik-bw.de

IT-Bündnis Baden-Württemberg

The IT-Bündnis and its twelve IT networks create important bridges across regions and disciplines to tap into the potential of digitisation and innovation for small and mid-sized companies.

IT-Bündnis Baden-Württemberg

Haid-und-Neu-Str. 18
76131 Karlsruhe
www.itbuendnis.de

Gennadi Schermann
+49 721 602897-0
info@itbuendnis.de

Landesnetzwerk Mechatronik BW GmbH

The goal of the Landesnetzwerk Mechatronik BW is to serve companies cooperatively and actively, network among them with a solution-oriented approach, and initiate and implement topics, projects, and initiatives relevant to industry.

Mechatronik BW GmbH

Manfred-Wörner-Straße 115
73037 Göppingen
www.mechatronik-bw.de

Volker Schiek
+49 7161 965950-0
info@mechatronik-ev.de

Leichtbau BW GmbH

Leichtbau BW is a state agency for business and scientific development and serves as the world's largest lightweight construction network with 1,800 companies and 225 research institutions.

Leichtbau BW GmbH

Breitscheidstraße 4
70174 Stuttgart
www.leichtbau-bw.de

Sandra Bayer-Teixeira
+49 711 128988-43
sandra.bayer@leichtbau-bw.de

MANUFUTURE-BW e. V.

The state-wide network Produktionstechnik MANUFUTURE-BW e.V. aims to ensure unique, complementary expertise in Baden-Württemberg for the future competitiveness of small and mid-sized companies.

MANUFUTURE-BW e. V.

Friedrichstraße 10
70174 Stuttgart
www.manufuture-bw.de

Gunther Rieger
+49 711 2283-564
info@manufuture-bw.de



MFG Medien- und Filmgesellschaft Baden-Württemberg mbH

The Baden-Württemberg MFG promotes film culture and film business, supporting cultural and creative thinkers in the southwest.

MFG Medien- und Filmgesellschaft Baden-Württemberg mbH

Breitscheidstraße 4
70174 Stuttgart
www.mfg.de

Prof. Carl Bergengruen
+49 711 90715-311
info@mfg.de

microTEC Südwest e. V.

The microTEC southwest cluster is the competence and cooperative network for smart microsystems technology solutions in Europe and the point of contact for microsystems engineering in Baden-Württemberg.

microTEC Südwest e. V.

Emmy-Noether-Straße 2
79110 Freiburg
www.microtec-suedwest.de

Dr. Christine Neuy
+49 761 386909-0
office@microtec-suedwest.de

Netzwerk Kreativwirtschaft Baden-Württemberg

This network serves cultural and creative development agencies from municipalities, regions, and associations of individual subsectors of the cultural and creative economy. Its goals are primarily to promote the exchange of information and cooperations.

Netzwerk Kreativwirtschaft Baden-Württemberg c/o MFG Medien- und Filmgesellschaft Baden-Württemberg mbH

Breitscheidstraße 4
70174 Stuttgart
www.kreativnetzwerk.mfg.de

Ulrich Winchenbach
+49 711 90715-313
winchenbach@mfg.de

Photonics BW e. V. – Innovation cluster for optical technologies in Baden-Württemberg

Photonics BW is an innovative network focused on promoting optical technologies in research, development and applications, education and training, and supporting young professionals and PR work in Baden-Württemberg.

Photonics BW e. V. – Innovation cluster for optical technologies in Baden-Württemberg

Anton-Huber-Straße 20
73430 Aalen
www.photonicsbw.de

Dr.-Ing. Andreas Ehrhardt
+ 49 7361 633 909-1
info@photonicsbw.de

Plattform Umwelttechnik e. V.

Plattform Umwelttechnik is a private business as-association of companies, institutes and universities in Baden-Württemberg. It promotes collaboration in R&D and production, environmental and energy technology as well as services.

Plattform Umwelttechnik e. V.

Gerhard-Koch-Straße 2-4
73760 Ostfildern
www.pu-bw.de

Ingrid Müller
+49 711 32732-533
pu@lvi.de

proHolzBW GmbH

proHolzBW GmbH serves as a hub for forestry and timber networks to promote the use of wood in Baden-Württemberg.

proHolzBW GmbH

Hellmuth-Hirth-Straße 7
73760 Ostfildern
www.proholzbw.de

Christoph Jost
info@proholzbw.de
+49 711 400 545-70

Smart Home & Living Baden-Württemberg e. V.

The Baden-Württemberg Smart Home & Living association was founded with the goal of promoting digitisation in the home and hospital care sectors in the state.

Smart Home & Living Baden-Württemberg e. V.

Wilhelm-Schickard-Str. 10
78052 Villingen-Schwenningen
www.shl-bw.de

Nathalie Hipp
+49 7721 943 160
nathalie.hipp@shl-bw.de

Solar Cluster Baden-Württemberg e. V.

The Baden-Württemberg Solar Cluster is a collaboration of approx. 45 companies, research institutions and associations from the solar business area.

Solar Cluster Baden-Württemberg e. V.

Meitnerstr. 1
70563 Stuttgart
www.solarcluster-bw.de

Franz Pöter
+49 711 7870-309
info@solarcluster-bw.de

Umwelttechnik BW GmbH

As a state agency, Umwelttechnik BW brings together relevant information, activities and actors in Baden-Württemberg from the areas of business, science, and policy.

Umwelttechnik BW GmbH

Friedrichstraße 45
70174 Stuttgart
www.umwelttechnik-bw.de

Dr.-Ing. Anette Zimmermann
+49 711 252841-10
info@umwelttechnik-bw.de

Virtual Dimension Center Fellbach e. V.

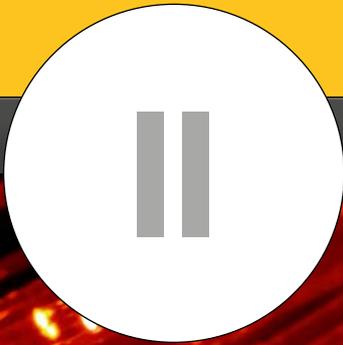
The Virtual Dimension Center Fellbach (VDC) is Germany's leading competence network for virtual engineering, especially in the areas of VR, 3D simulations, 3D visualisation and product life cycle management.

Virtual Dimension Center Fellbach e. V.

Auberlenstraße 13
70736 Fellbach
www.vdc-fellbach.de

Dr.-Ing. Christoph Runde
+49 711 585309-0
info@vdc-fellbach.de





Institutions supporting clusters and cluster initiatives

Baden-Württemberg International (bw-i)

Services for internationalising clusters:

- Anchoring in the overall strategy for advertising Baden-Württemberg as a business and science location
- Support in image building and international positioning
- Measures for tapping into domestic and international markets through market and industry information and events
- Help in initiating and developing international cooperations
- Working together to add new cluster actors and obtain investment in the cluster
- Support in personnel recruiting

Baden-Württemberg International
Gesellschaft für internationale wirtschaftliche und wissenschaftliche Zusammenarbeit mbH

Haus der Wirtschaft
Willi-Bleicher-Straße 19
70174 Stuttgart
www.bw-i.de

Ekatarina Deckers
+49 711 22787-67
Ekatarina.Deckers@bw-i.de



ClusterAgentur Baden-Württemberg

The ClusterAgentur is a service provider for the cluster initiatives, state-wide networks and cluster policy in Baden-Württemberg. As a partner to cluster management and cluster initiatives, it helps them to become professionalised.

Alongside cluster initiatives and state-wide networks in Baden-Württemberg, the ClusterAgentur develops new services. These are then implemented independently by cluster and network management in collaboration with members. In addition, the ClusterAgentur supports the Baden-Württemberg Ministry of Economics, Labour and Housing in implementing the state's cluster policy goals.

The ClusterAgentur Baden-Württemberg also increasingly offers development agencies support services in their role as drivers implementing regional innovation processes and networking activities. The goal is to create awareness for these key roles in the regional innovation environment and indicate how these roles can be better filled.

The ClusterAgentur Baden-Württemberg represents a close collaboration between members of VDI/VDE Innovation + Technik GmbH, Steinbeis 2i GmbH and Baden-Württemberg International GmbH. It also strives for close cooperation with different state agencies within Baden-Württemberg. The ClusterAgentur team has many years of national and international experience in the topics of cluster management, coaching, and cluster policy.

The ClusterAgentur is partially funded by the European Fund for Regional Development (EFRE).

ClusterAgentur Baden-Württemberg	
Haus der Wirtschaft Willi-Bleicher-Straße 19 70174 Stuttgart www.clusterportal-bw.de/cluster-agentur	Dr.-Ing. Gerd Meier zu Köcker +49 711 123-3033 office@clusteragentur-bw.de



Steinbeis 2i GmbH (S2i)

Steinbeis 2i GmbH (S2i) was founded in 2016 as a subsidiary of the Steinbeis-Europe Centre of Steinbeis Innovation gGmbH with locations in Stuttgart and Karlsruhe. Steinbeis 2i is focused on the topics of innovation and internationalisation, and utilises the over 25 years' experience offered by the Steinbeis Europe Centre. The S2i supports political decision-makers and cluster organisations in developing cluster strategies, carrying out cluster policy measures and international collaboration.

S2i supports cluster actors from business and science through the Enterprise Europe Network and supports cluster management in developing and implementing strategies for internationalisation.

Service provider for strategic development and internationalisation of clusters:

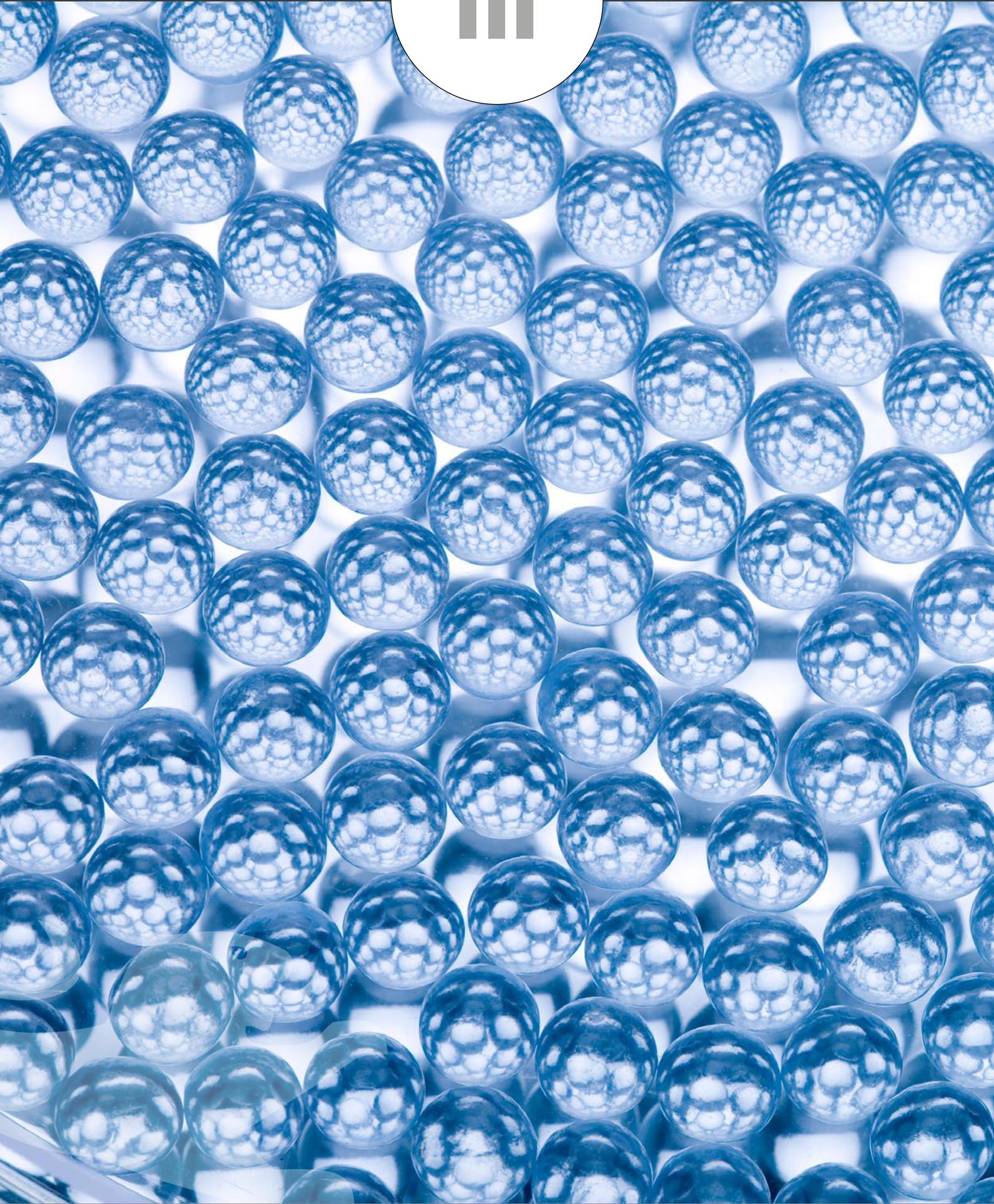
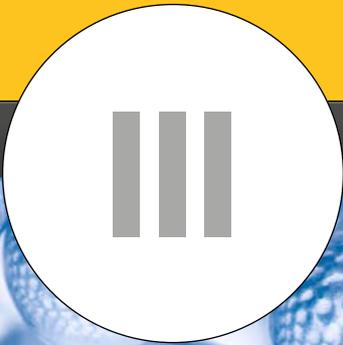
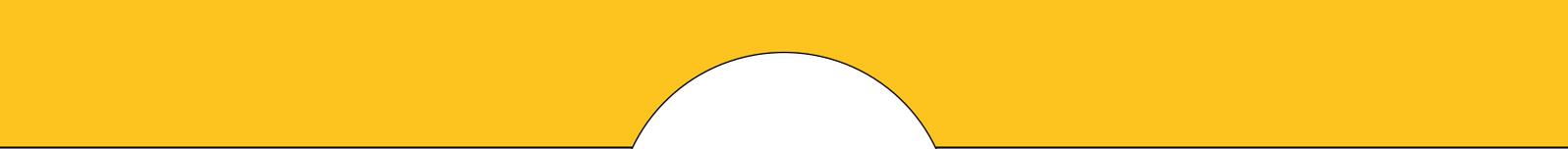
- Systematic support for dialogue-oriented strategic processes for targeted bundling of expertise in clusters and positioning within an international context
- Networking cluster actors in the European research and innovation landscape by identifying and procuring international partners, supporting international technology and knowledge transfer, developing and managing EU-funded cluster projects, organising and implementing business trips, international cooperative forums and conferences.
- International exchange of good practices for cluster development and international coordination of cluster funding measures

Steinbeis 2i GmbH

Kienestraße 35
70174 Stuttgart
www.steinbeis2i.de

Heike Fischer
+49 711 123 4014
fischer@steinbeis-europa.de





Overviews

The following overview of regional cluster contacts includes contact information for regional cluster contacts identified for the twelve Baden-Württemberg state planning regions.

If you have specific questions related to clusters or cluster initiatives, the regional cluster contacts are important points of contact within the twelve planning regions. This is especially relevant for stakeholders who may not be anchored strongly in the region yet. Many cluster initiatives are assigned to a specific industry or sector in the Cluster Atlas, even though their range of services may cover many different topics and measures that are not always externally visible. This applies in particular to actors and companies

active in interdisciplinary fields. Because of this, it can be difficult to find the right cluster initiative for your needs without local knowledge. In such cases, please get in touch with regional cluster contacts, who can help you find the right contact person.

In addition, the cluster contacts for the twelve state planning regions play another key role. They act as your direct contact persons for the Ministry of Economics, Labour and Housing Baden-Württemberg by conveying cluster policy goals and transmitting new ideas from the state level to the regions. In addition, they serve as contact partners for regional cluster initiatives and represent their needs, ideas, and problems to the Ministry.



Regional Cluster Contacts

Region	Contact	Institution	Phone	E-mail	Address
Stuttgart	Stephanie Fleischmann	Wirtschaftsförderung Region Stuttgart GmbH	0711 22835-26	stephanie.fleischmann@region-stuttgart.de	Friedrichstraße 10 70174 Stuttgart
Heilbronn-Franken	Dr. Andreas Schumm	Wirtschaftsregion Heilbronn-Franken GmbH	07131 7669-860	a.schumm@heilbronn-franken.com	Weipertstraße 8-10 74076 Heilbronn
Ostwürttemberg	Dr. Ursula Bilger	Wirtschaftsförderungsgesellschaft mbH Region Ostwürttemberg (WIRO)	07171 92753-0	bilger@ostwuerttemberg.de	Bahnhofplatz 5 73525 Schwäbisch Gmünd
Mittlerer Oberrhein	Jochen Ehlgötz	TechnologieRegion Karlsruhe GmbH	0721 40244-712	jochen.ehlgoetz@technologie-region-karlsruhe.de	Emmy-Noether-Straße 11 76131 Karlsruhe
Rhein-Neckar	Klemens Gröger	Verband Region Rhein-Neckar	0621 10708-213	klemens.groeger@vrn.de	M1, 4-5 68161 Mannheim
Nordschwarzwald	Jochen Protzer	Wirtschaftsförderung Nordschwarzwald GmbH	07231 154-3690	protzer@nordschwarzwald.de	Westliche Karl-Friedrich-Straße 29-31 75172 Pforzheim
Südlicher Oberrhein	Dr. Michael Richter	Freiburg Wirtschaft Touristik und Messe GmbH & Co.KG	0761 3881-1201	michael.richter@fwtm.freiburg.de	Neuer Messplatz 3 79108 Freiburg
Schwarzwald-Baar-Heuberg	Thomas Wolf	IHK Schwarzwald-Baar-Heuberg	07721 922-515	wolf@vs-ihk.de	Romäusring 4 78050 Villingen-Schwenningen
Hochrhein-Bodensee	Alexander Maas	Wirtschaftsregion Südwest GmbH	07621 5500-150	info@wsw.eu	Marie-Curie-Straße 8 79539 Lörrach
Neckar-Alb	Dr. Markus Nawroth	IHK Reutlingen	07121 201-185	nawroth@reutlingen.ihk.de	Hindenburgstraße 54 72762 Reutlingen
Donau-Iller	Jonas Pürckhauer	IHK Ulm	0731 173-169	puerckhauer@ulm.ihk.de	Olgastaße 97-101 89073 Ulm
Bodensee-Oberschwaben	Benedikt Otte	Wirtschaftsförderung Bodenseekreis GmbH (WFB)	07541 38588-0	info@wf-bodenseekreis.de	Leutholdstraße 30 88045 Friedrichshafen



IV



Cluster policy terms and target fields

Terms, definitions, and characteristics

The Baden-Württemberg Cluster Atlas is based on the following definitions of the terms cluster, cluster initiatives and state-wide networks:

Cluster

A cluster is understood as an “innovative economic cluster” in a defined geographical area (regional). This is a targeted collaboration between companies – which may be in competition with one another – and other partners from research, science and associations within an economic region to jointly achieve a higher level of overall benefit. The collaboration may be characterised in different ways. Over the “life cycle” of a cluster, research-related topics may be more dominant at some periods, while business-related topics such as marketing are more important at others.

Key characteristic criteria for regional clusters may include (not exhaustive)

- thematic market focus (horizontal: same products, services, vertical: same supply chain or stages thereof),
- geographic or spatial proximity (quick accessibility, ease of coordination),
- a sufficient number and density of companies (critical mass) and
- at least a national sales potential for products or services, and a high capacity for exporting from a regional standpoint

These central elements help create a cluster culture that can bind together companies within a region. The combination of content-related and geographical proximity between different actors along the supply chain is what makes it possible to implement innovation processes. Therefore, one key feature of clusters is geographical proximity between companies and applied research institutions, universities, colleges, or transfer institutes. This is directly important

for innovative product development, and therefore for value creation within the cluster. It also ensures the cluster promotes the young professional talent it needs.

In the past, regional economic clusters have also been created without the involvement of scientific institutions like universities, research and transfer institutes. In many cases, customers and their product and application experience and resulting suggestions for optimisation can also be a central source for innovative product and process solutions.

Cluster initiative

A cluster initiative is created when the innovation-oriented cooperative relationships created in a network become more strategically and systematically coordinated and documented (marketing), when gaps (for instance in areas of expertise or the supply chain) are closed, and when these activities are supported through the founding of an organisation, for instance through integration in a sponsoring organisation. Often, such cluster initiatives are involved as part of development promotion or technology transfer in a regional structural policy and/or innovation policy or may be founded based on such development activities. One key factor is that cluster actors must have a common goal in systematic and organisational collaboration within the cluster, working towards a greater individual and mutual benefit that they would not be able to achieve alone. In contrast to national and state-wide networks or looser forms of cooperation, they are characterised by being regional and by systematically activating the innovative potential for cooperation in a targeted manner to generate synergies and growth.

Simple competence, marketing and innovation networks or technology centres and other networks without an innovative cluster-based approach, such as tourism federations, are not included in this definition. Tourism-related initiatives are only included if they support healthcare services.



State-wide and cross-regional networks / platforms

State-wide networks and innovation platforms handle state-wide coordination and moderation of relevant regional clusters and cluster initiatives alongside other partners such as location agencies, exhibition corporations or trans-

fer institutions to increase synergy effects. Their task is to group existing networks and regional cluster initiatives by theme with regards to their impacts on the supply chain and increasing competence, better coordinate among them, and facilitate effective coordination and cooperation on the state level.

Cluster policy target fields

During the “Analytic and conceptual bases of the cluster policy in Baden-Württemberg” study, which was prepared on behalf of the Economic Ministry and published in 2008, 18 different future-oriented cluster policy target fields have been identified and discussed in the state government in relation to individual industries, technologies, market areas

and interdisciplinary technologies. Identifying these target fields and assigning existing cluster initiatives to these target fields both creates the basis for further raising the profile of regional clusters and for consistently developing cluster initiatives.

Assignment of economic industries (regional cluster topics) to cluster policy target fields

Cluster policy target fields (Sorted alphabetically, no ranking implied)	Founding context for cluster development	Economic industries (Described based on the economic sector system of the Federal Statistical Office (WZ 03))
<p>Aerospace</p>	<p>Leading aerospace companies are located in Baden-Württemberg. Over the last few years, the number of employees working in aerospace has grown. Networking between strong research institutions and relevant companies is key to utilising the potential for growth.</p>	<p>Vehicle construction and other manufacturing industries such as mechanical engineering, metals, plastics, electrical engineering, etc.</p>

Cluster policy target fields (Sorted alphabetically, no ranking implied)	Founding context for cluster development	Economic industries (Described based on the economic sector system of the Federal Statistical Office (WZ 03))
Automotive	Leading automotive manufacturers and a strong supplier industry characterise the automotive industry in Baden-Württemberg. The automotive industry is shaped by a broad range of supply chain participants. The industry works to integrate suppliers into production at production locations to ensure better vertical production. Suppliers from a wide variety of economic sectors handle major segments of development and production.	Vehicle construction, electrical engineering, metals industry, rubber / plastics industry
Biotechnology	Biotechnology is a key technology of the 21st century. The biotechnology field focuses on red biotechnology, primarily handling biopharmaceuticals, regenerative medicine and diagnostic tests. Other fields include green and white biotechnology. This field cannot be associated with a single sector but is rather reflected in many different applications.	Medical technology, pharmaceuticals, chemistry
Energy	Baden-Württemberg is an energy location offering good local conditions to energy service providers as well as other manufacturers of energy technologies in both conventional fields and in the renewable energy area. Baden-Württemberg has a high level of expertise in using renewable energies. The Baden-Württemberg region is a leader within Germany in fuel cell technology. This is highly relevant to the automotive industry in particular.	Energy generation, mechanical engineering, measurement, control, and regulation technology (MSR)
Information technology, IT applications / corporate software	232,000 employees work in the information technology sector in Baden-Württemberg. With 18 % of the workforce, almost one in 5 jobs in the IT sector in Germany is located in Baden-Württemberg. Key drivers of positive development over the past few years have been the establishment of new basic technologies in the industry and the development of B2B and e-commerce platforms and public partner networks in the field of corporate software.	IT / software



Cluster policy target fields (Sorted alphabetically, no ranking implied)	Founding context for cluster development	Economic industries (Described based on the economic sector system of the Federal Statistical Office (WZ 03))
Knowledge economy incl. corporate services	Service providers include, for instance, engineering service providers, corporate advising, marketing and research and development service providers. They are key elements in the industrial supply chain, are closely associated with industry, and serve an important interdisciplinary function.	Corporate services
Logistics and intralogistics	Logistics is a basic function in the modern collaborative economy. Differentiated logistics services are required to successfully integrate our industries into global purchasing and sales structures. The logistics industry is not considered a separate industry in official statistics. Recurring special analyses show that expanded logistics, with roughly 400,000 employees, is one of the largest industries in the state.	Logistics, incl. transportation and messaging, logistics-related industries, logistics-related services, mechanical engineering
Mechatronics	Mechatronic systems combine mechanical, electrical, and data processing components. The focus is on supplementing and expanding mechanical systems with sensors and microcomputers to create partially intelligent products and systems.	Mechanical engineering, electrical engineering, IT / software, automotive construction
Media, culture, and creative economy	These industries form the market-oriented culture and creative economy sector focused on creating, producing, distributing and/or media distribution of cultural/creative products and services. Baden-Württemberg employs roughly 16% of the workers employed in this field in Germany (in roughly 29,000 companies).	Book market, art market, film business, radio business, visual arts, design business, architecture market, press market, advertising market, software / games industry
Medical technology	Due to the high number of employees and high revenues as well as a high export rate, medical technology is a key leading and growth sector which is internationally competitive and offers good future prospects. The interaction between medical technology and healthcare opens up a large number of opportunities for innovation, paving the way for accelerated marketing of new medical technology products. Networking between the two industries is key to pioneering applications.	Medical technology, health and social issues

Cluster policy target fields (Sorted alphabetically, no ranking implied)	Founding context for cluster development	Economic industries (Described based on the economic sector system of the Federal Statistical Office (WZ 03))
Microsystems engineering incl. nano-technology	Miniaturising and increasing the efficiency of components through microsystems are being applied in more and more products in a wide range of industries. Microsystems engineering is represented by highly specialised R&D institutions and companies in a wide range of application industries. The importance of these industries reflects the importance of the technology.	Automotive construction, mechanical engineering, medical technology, measurement, control and regulation technology
New materials / surfaces	The development of new materials and surface properties is an interdisciplinary issue touching a wide range of industries in Baden-Württemberg. For these different industries, the development of new materials and surface properties is a key sub-field of their innovation management and serves to maintain or expand their competitive position. Because of this, the development and use of new materials is a key strategic technology field in the economy.	Information and communication technology, automotive construction, mechanical engineering, medical technology, metals industry, plastics, jewellery, textiles
Pharmaceuticals industry	The pharmaceuticals industry is concentrated to an above-average extent, in comparison to the national average. One in four jobs in the German pharmaceuticals industry and one in three of Germany's 30 pharmaceutical centres with the largest number of employees are located in Baden-Württemberg. The chemicals industry, in contrast, is "only" important at a few individual locations.	Chemistry, sub-field of pharmaceuticals
Photonics	Optical technologies are a traditional high-tech industry in the region, while increasingly being considered as "enabling technologies". Baden-Württemberg has a leading position within Germany in this area. The spectrum of optical technologies includes lighting technology, information and communication technology, metrology, medical technology and biophotonics as well as production engineering. The synergies resulting from networking between these economic industries shape future opportunities within the supply chain. Due to their interdisciplinary character, they also strongly impact many other production areas.	Optical industry, measurement, control and regulation technology, electrical engineering



Cluster policy target fields (Sorted alphabetically, no ranking implied)	Founding context for cluster development	Economic industries (Described based on the economic sector system of the Federal Statistical Office (WZ 03))
Production technology incl. mechanical engineering	With respect to overall job numbers, production technology is the largest industry in the manufacturing sector and a key pillar of the economy in Baden-Württemberg and the leading machine construction centre in Germany. Production technology faces high demands due to increasing specialisation and a concentration on system solutions. Cross-sector cooperations generate innovative projects and ensure a competitive advantage.	Mechanical engineering (also metals industry, electrical engineering)
Satellite navigation	The main users and purchasers of classic satellite navigation are found in Baden-Württemberg's aerospace industry, and increasingly in the automotive industry as well. However, companies that utilise satellite navigation technology are especially important. The Galileo satellite navigation system will be another driver.	Aerospace industry, vehicle construction, IT / Software
Security technology	Security technology is very heterogeneous and is an interdisciplinary and cross-sector technology in Baden-Württemberg. Security technologies include areas like sensors, identification and access control technologies like biometric processes, structural building protection, microsystems engineering, IT security, telecommunications, and other sectors.	Electrical engineering, optics, IT / software, telecommunications, production engineering, etc.
Telecommunications	Some regions of the state are characterised by a high concentration of telecommunication companies, giving them a high level of economic importance in those areas. Regional centres include Stuttgart, Mannheim, Karlsruhe and Ulm.	Communications engineering, electrical engineering, IT / software

Explanations of the statistical data used to describe the regions

Using statistics to reflect innovative activity within a region is a major challenge. This is due partially to the difficulty of defining the term innovation at all. How can we determine the difference between invention and innovation? How can we judge whether an innovation is successful on the market or not? Where does an innovation originate; at the location where it was invented, or at the location where it is produced? These are just some of the questions we cannot answer with official statistical data.

However, a variety of indicators are used to measure innovation, such as the amount of money spent on R&D, the number of patents, or the number of employees working in R&D. These indicators help gain initial insight into a region's innovative activities.

However, even these indicators are not always available on

the regional level. If case numbers are low, even aggregated data can indicate the activities of individual companies and thereby violate data privacy provisions. Because of this, many indicators used to measure innovative activity are not available on a regional level.

Against this backdrop, the following indicators were selected to describe the regions in the 2018 Cluster Atlas:

- The **innovation index** with level and dynamic index
- Employees subject to social insurance contributions in the "manufacturing sector" and "services" areas (**employees in the individual sectors**)
- **R&D personnel employment** in the economic sector

These will be explained in more detail in the following section.

Innovation index

The innovation index is an indicator of a region's innovative capacity. The indicator is based on the sub-indices of "level" and "dynamism".

The level index is based on the most current values for the following six individual indicators:

- Research and development expenditures in relation to the gross domestic product
- Personnel in research and development in relation to overall employees
- Employees in industrial high-tech sectors in relation to overall employees
- Employees in knowledge-intensive services in relation to overall employees
- Employees in scientific-technical fields in relation to overall employees
- Patent applications to the European Patent Office per 1 mill. inhabitants.

These will be explained in more detail in the following section.

The dynamic index describes the annual average rate of change in these six indicators, typically since the end of the 1990s. The values for the indicators are standardised, so that the highest indicator value is assigned a value of 100 and the lowest a value of 0. All indicators are weighted equally in the "level" and "dynamism" partial indices, then combined to create the innovation index at a ratio of 3:1.¹

¹ Federal Statistical Office 2018 (<https://www.statistik-bw.de/Glossar/439>).



Employees in the individual sectors

The statistics of the Federal Labour Agency are used to calculate numbers of employees, as provided by the Baden-Württemberg Federal Statistical Office. These are based on employer notifications to healthcare, pension, nursing care and/or unemployment insurance. All employees subject to social insurance contributions (approx. 75 to 80 % of all employees) are included in these statistics.

Employees subject to social insurance contributions includes all employees subject to healthcare, pension insurance and/or contributions under employment promotion

law or subject to payment of contributions to statutory pension insurance or under employment promotion law.

Employees subject to social insurance contributions also include interns, trainees, student workers and persons called from such an employment relationship to engage in mandatory statutory service (such as reserve duty training). Employees subject to social insurance contributions do not, in contrast, include civil servants, self-employed people, unpaid family workers, full and part time soldiers, and individuals serving required civil service and military terms.²

R&D personnel employment in the economic sector

R&D personnel include all workers involved directly with research and development. These include scientists, engineers, technicians, as well as administrators and auxiliary personnel. R&D personnel are paid out in full time equivalents (FTE). Employees working only part time in R&D (including part time workers) are converted to a percentage of a FTE research and development worker.

The “R&D personnel employment” indicator allows a comparison between research being done in the different regional economies and/or economic areas. R&D personnel (in FTE) are calculated in relation to total employees (in FTE) or employees in an economic sector (number).

R&D personnel in an economic sector are calculated based on a voluntary survey carried out every two years by Wissenschaftsstatistik GmbH in the Donor’s Association for the German Economy. Companies are assigned to different sectors depending on their economic focus and based on the industry classification by the Federal Statistical Office. R&D personnel are assigned to different regions on the research institution level. Therefore, the location of the research institution does not always indicate the location of the production location.³

² Destatis 2018 (<https://www.destatis.de/DE/ZahlenFakten/GesamtwirtschaftUmwelt/Arbeitsmarkt/Methoden/Sozialversicherungspflichtige.html>)

³ Statistisches Monatsheft Baden-Württemberg 6/2006: R&D personnel in the Baden-Württemberg economic sector, national and international comparison.

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Picture credits	Seite 4: © miappc, iStock Seite 6: © Rapid Eye, iStock Seite 8: © billyfoto, iStock Seite 24: © Stuttgart-Marketing GmbH Seite 36: © Wirtschaftsregion Heilbronn-Franken GmbH Seite 48: © Burkhard Walther Seite 56: © ARTIS-Uli Deck Seite 66: © Metropolregion Rhein-Neckar GmbH Seite 76: © Wirtschaftsförderung Nordschwarzwald GmbH Seite 84: © Regionalverband Südlicher Oberrhein Seite 92: © Landratsamt Rottweil Seite 102: © Achim Mende Seite 110: © Standortagentur Tübingen - Reutlingen - Zollernalb GmbH, Angela Hammer Seite 116: © Achim Mende Seite 122: © Achim Mende Seite 128: © 4X-Image, iStock Seite 134: © Ziggymai, iStock Seite 138: © draschwartz, iStock Seite 142: © lutavia, iStock
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Baden-Württemberg

MINISTRY OF ECONOMIC AFFAIRS, LABOUR AND HOUSING

Ministerium für Wirtschaft, Arbeit und Wohnungsbau Baden-Württemberg • Neues Schloss • Schlossplatz 4 • 70173 Stuttgart
Telefon (0711) 123-0 • Telefax (0711) 123-47 91 • E-Mail poststelle@wm.bwl.de