



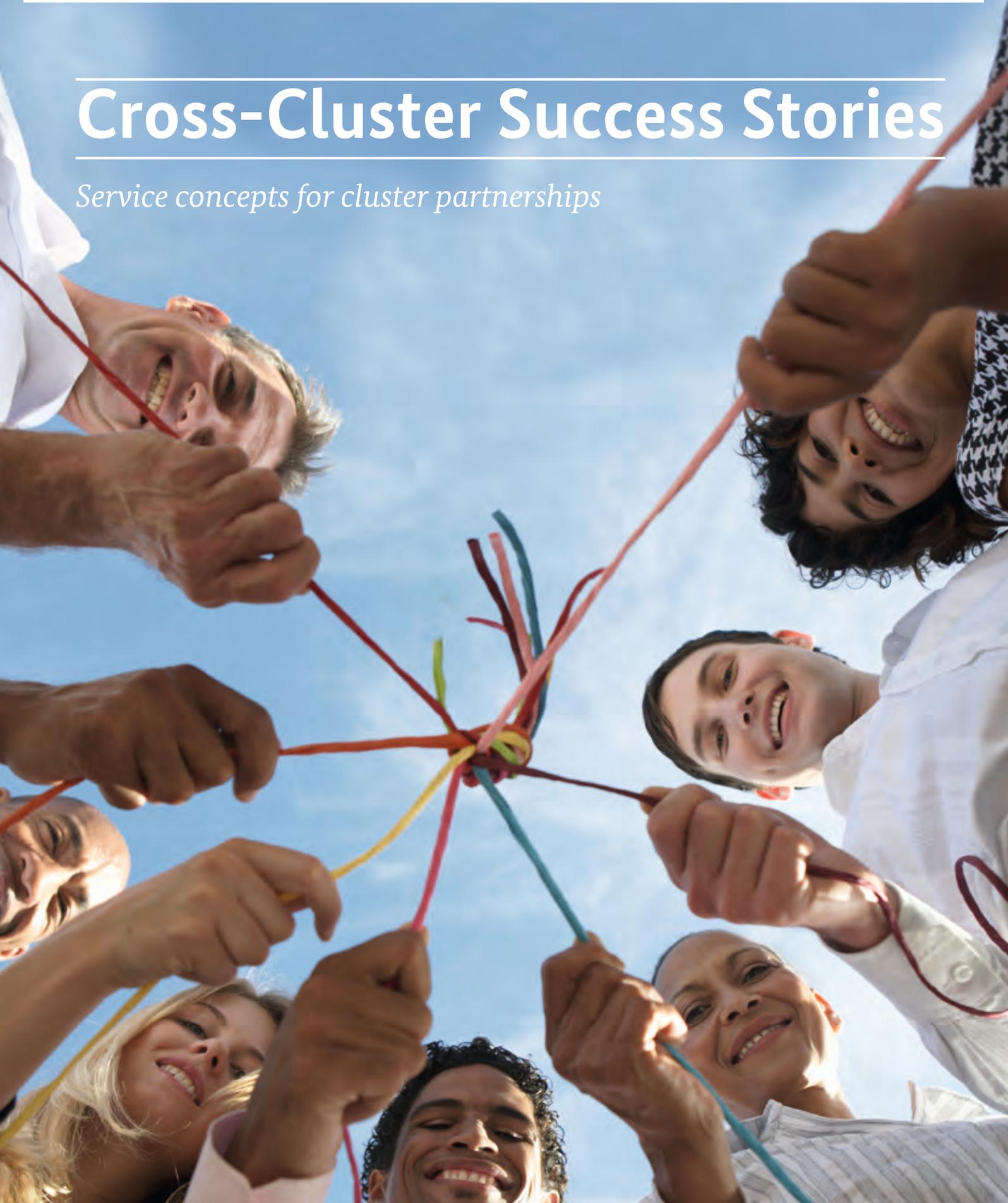
Federal Ministry
for Economic Affairs
and Energy



go-cluster
EXZELLENT VERNETZT!

Cross-Cluster Success Stories

Service concepts for cluster partnerships



Imprint

Published by

Federal Ministry for Economic Affairs and Energy (BMWi)
Public Relations
11019 Berlin
www.bmwi.de

Text and editing

Clusters involved
VDI/VDE Innovation + Technik GmbH

Design and production

VDI/VDE Innovation + Technik GmbH

Status

March 2016

Print

Druckerei Thiel Gruppe, Ludwigsfelde

Picture credits

plustwentyseven – Thinkstock (Title); Fraunhofer Projektgruppe RMV (P. 6); Cluster Mechatronik & Automation Management gGmbH (P. 8 left); Carbon Composites e.V. (P. 8 right); frog – Fotolia (P. 10); Op-tence e.V. (P. 12 left); Swissmem (P. 12 right); powell83 – Fotolia (P. 14); Logistik-Initiative Hamburg e.V. (P. 16 left); BrainsBusiness (P. 16 right); WavebreakmediaMicro – Fotolia (P. 18); foodRegio (P. 20); Rawpixel.com – Fotolia (P. 22); Maurizio Gretter | TIS innovation park (P. 26); Satellite navigation Berchtesgadener Land – Salzburg (P. 28); Arvid Müller / BioRegio STERN Management GmbH (P. 30); biosaxony e.V. (P. 32 left); BioRegio STERN Management GmbH (P. 32 right); Brezina – Thinkstock (P. 34); bwcon (P. 36 left); microTEC Südwest (P. 36 right); fotolixrender – Fotolia (P. 38); Nanotechnology cluster (P. 40 left); Munich Biotech (P. 40 right); westend61 – Fotolia (P. 42); Chemie-Cluster Bayern (P. 44 left); Hamburg Aviation (P. 44 right); maxsim – Fotolia (P. 46); InnoZent OWL e.V. (P. 48 left); BalticNet-PlasmaTec e.V. (P. 48 right); Food-Processing Initiative e.V. (P. 48 bottom); Sergey Nivens – Fotolia (P. 50); SpectroNet (P. 52 top left and right); Strategische Partner-schaft Sensorik e.V. (P. 52 bottom left and right); tti Magdeburg GmbH (P. 54); Saxony-Anhalt special purpose machinery and plant engineering cluster (P. 56 left); INPLAS e.V. (P. 56 right); Ines Escherich (P. 58); PhotonicNet GmbH (P. 60 left); Technology-Mountains e.V. (P. 60 right); ICM e.V. (P. 60 bottom); wavebreak-premium – Fotolia (P. 62); BioM Biotech Cluster Development GmbH (P. 64 left); Medical Valley EMN (P. 64 right); estations – Fotolia (P. 66); deENet e.V. (P. 68 left); MoWiN.net e.V. (P. 68 right); psdesign1 – Fotolia (P. 70); medways e.V. (P. 72 left); OptoNet e.V. (P. 72 right); AFBW (P. 74); AFBW (P. 76 left); VDC (P. 76 right)

This brochure is published as part of the public relations work of the Federal Ministry for Economic Affairs and Energy. It is distributed free of charge and is not intended for sale. The distribution of this brochure at campaign events or at information stands run by political parties is prohibited, and no political party-related information or advertising may be inserted in, printed on, or affixed to this publication.



The Federal Ministry for Economic Affairs and Energy has been awarded the berufundfamilie® (Work and Family) audit certificate for its family-friendly HR policy. The certificate is awarded by berufundfamilie gGmbH, an initiative of the non-profit Hertie Foundation.



This and other publications can be obtained from:
Federal Ministry for Economic Affairs and Energy
Public Relations Division
Email: publikationen@bundesregierung.de
www.bmwi.de

Order service:
Tel: +49 30 182722721
Fax: +49 30 18102722721

Contents

Introduction: Designing successful cross-cluster partnerships	5
Customised training at the interface between mechatronics and carbon	6
First online capacity exchange for measuring devices and production machinery in photonics.....	10
German-Danish cross-cluster cooperation in “intelligent logistics”	14
Food packaging is getting safer, more intelligent and environmentally friendly.....	18
Karlsruhe region: networking among company founders of the ICT and creative industry	22
Quality through quantity – crowd innovation and funding	26
Medical technology and biotechnology towards a joint network	30
A first in Europe: Industry 4.0 knowledge base for SMEs.....	34
Communication strategies for SMEs in biotechnology and nanotechnology.....	38
Chemical and aviation industry on a common path	42
CLOU5 – multifunctional communication and cooperation platform.....	46
Smart networks – photonic microsensors on the rise	50
Innovative industrial fittings – with innovation management to a patented product.....	54
Cross-media strategies – linking regions and pooling innovation potential	58
Innovation Community – together on the road to precision medicine	62
Advanced mobility solutions for the North Hesse region	66
Getting optical systems for medical devices ready for approval	70
Platform for simulation of composites in Germany.....	74
The “go-cluster” programme.....	78

Introduction: Designing successful cross-cluster partnerships

The “go-cluster” programme launched by the Federal Ministry for Economic Affairs and Energy is a measure that combines the best performing innovation clusters and their cluster management organisations from Germany. Members of the “go-cluster” programme are characterised by excellent management and their extremely high competitive and innovative ability. The networking offers benefits for all members and is predicated on professional management. Clusters are also increasingly found in advanced technologies and the new upcoming branches of industry such as Industry 4.0, digitalisation, electromobility, environmental and biotechnology or the health and creative economy. Over 13,000 cluster actors are involved in the 99 “go-cluster” programme innovation clusters, including over 8,500 companies, of which more than 7,100 are small and medium-sized enterprises. Almost 1,600 actors come from industry, from universities and colleges and from non-university research facilities.

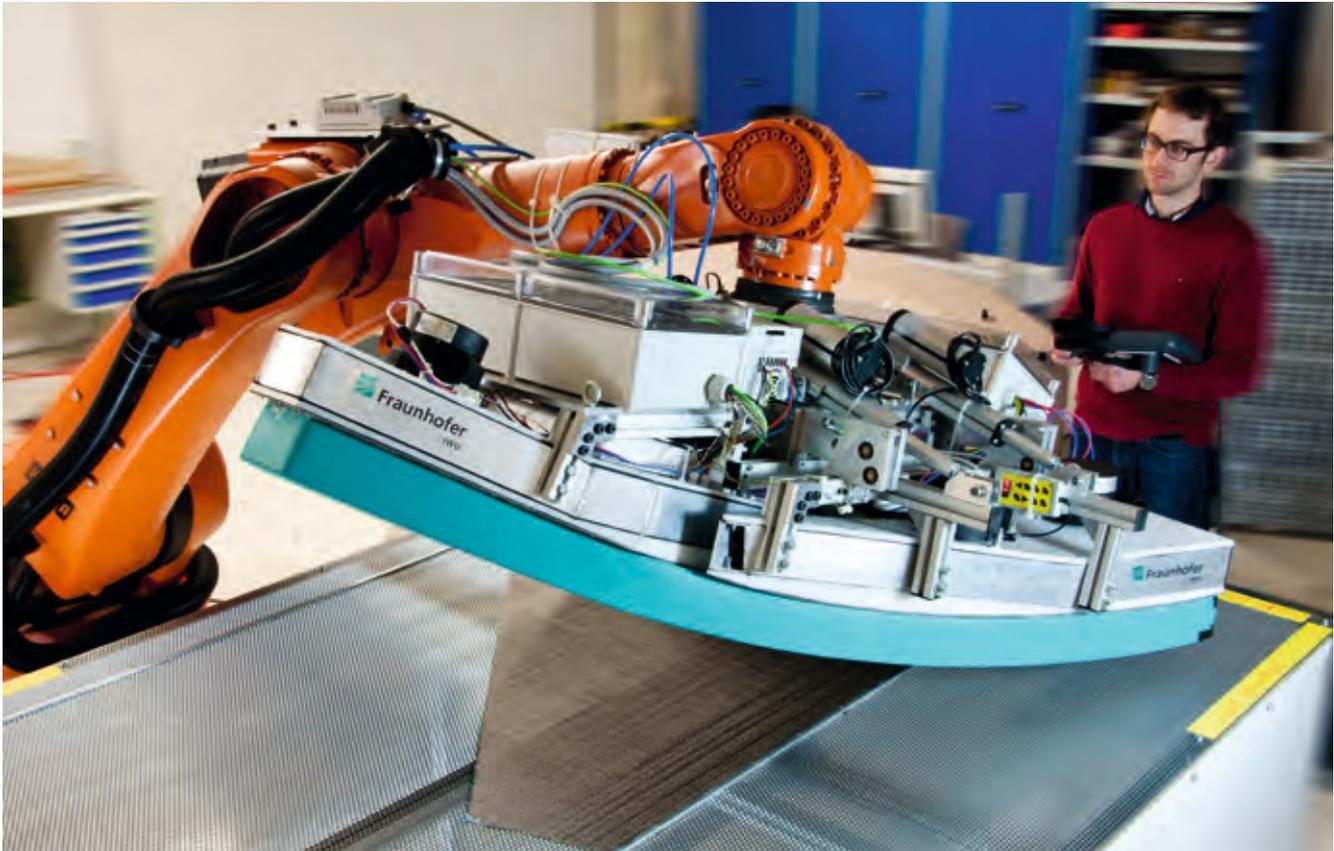
The Federal Ministry for Economic Affairs and Energy offers the participating innovation clusters financial support to develop and implement innovative, high-risk cluster services and cross-cluster partnerships. A key condition for funding is that these cross-cluster partnerships have profound effects on the cluster actors, especially on the small and medium-sized enterprises. The new cluster concepts must serve as a model and, as exemplary concepts, must fundamentally be transferable.

When the “cross-cluster partnerships” were announced, a total of 18 cooperation projects were supported, involving 32 cluster management organisations. 14 of the 18 projects supported were of a cross-sector and cross-technology na-

ture, thereby establishing completely new fields of cooperation for the relevant cluster management organisations and especially for the companies and the research facilities participating in these innovation clusters. In total, eight support projects had a regional perspective, focussing on interdisciplinary cooperation. There were a further seven support projects with a national focus, involving cluster management organisations based in different German states. Three cluster management organisations even had international cooperation partners from Switzerland, Denmark, Sweden and Spain. New partnerships were created between innovation clusters and their cluster management organisations, which in turn lead to innovative collaboration between the companies and the research facilities involved. This results in the strategic development of different technological and market segments. The support projects range from the design of new cooperation and innovation platforms tailored to the specific requirements of the cooperating sectors, concepts for modern financing possibilities and the development of cross-cluster apprenticeship and training opportunities, to cross-sector partnerships aimed at joint research and development projects.

This publication presents the new cross-cluster partnerships implemented with funding from the Federal Ministry for Economic Affairs and Energy in a clear and practical way. In addition to the presentation of the individual projects supported, the cluster managers explain their approach in interviews. Be inspired by the success stories from the “go-cluster” programme. We hope that we can give you several useful ideas for your own cluster activities.

Customised training at the interface between mechatronics and carbon



Robot grippers in action – automated process steps will also replace manual steps in lightweight engineering.

The Mechatronik & Automation Management gGmbH cluster and the Carbon Composites e.V. network have recognised that the availability of cross-cluster and cross-sector training in the areas of fibre composite technologies and mechatronics could significantly improve the skilled worker situation both in the Augsburg area, in which both clusters are located, and in the regions beyond. They have set themselves the goal of designing a training system with which skilled personnel can be trained quickly, to a high standard, and as required by the target group. This concept has been developed within the clusTRAIN project.

New requirements placed on skilled workers require new qualification measures

There is an acute shortage of skilled workers in several industries in Germany. This is discussed both at the political level and in companies, with the aim of identifying measures to facilitate the search for qualified skilled personnel and their successful recruitment. The training of future and

existing staff is deemed equally important. It is frequently seen that traditional training courses no longer meet requirements because the demands placed on skilled workers have changed due to interdisciplinary overlaps in these industries. At the same time, companies lack the resources to devote extensive amounts of time to measures aimed at improving staff qualification.

The Mechatronik & Automation and the Carbon Composites e.V. clusters have recognised this gap between requirements and existing qualifications. A number of intersections exist between both fields of technology (fibre composite technologies and mechatronics/automation), which have previously not been addressed by either of the specific apprenticeship and training programmes for these industries.

Against this background, both clusters developed a cross-technological offer of training, linking the carbon and mechatronics industries.

From two independent training programmes to a single, linked interdisciplinary offer

Both clusters already offer their actors their own further training measures (“mechatronikakademie” and “CCeV Weiterbildungsprogramm”) which incorporate both technical and methodological skills. The fact that there are several links at a technical level between fibre composite technologies and mechatronics was, however, previously disregarded. This concerns areas such as the degree of automation in carbon fibre reinforced plastic (CFRP) production. An example of this is the automated handling of unstable semi-finished products. It is particularly important to adopt an interdisciplinary approach in cross-sector technologies in order to boost the innovation potential of these technologies.

In the clusTRAIN project, a structured training system adapted to the specific requirements has been developed. Intersections were identified in the existing training programmes of both clusters, and opportunities for new links developed so as to make best use of the versatile skills for the specific industries involved. Innovative training formats were designed jointly on the basis of this.

Not only were the contents of this special training system adapted to new requirements using the cluster structures, but new forms of learning were also developed. In this way, the technical contents are always mediated according to the tandem trainer principle, i.e. the seminars are conducted jointly by one lecturer from the area of mechatronics and one lecturer from the field of lightweight engineering.

Industry and science are likewise presented together, so that current knowledge from science can be transferred to industry. The lecturers similarly come from both science and industry.

Ultimately, it is not just the individual employees and companies that benefit from these training courses, but also the cluster environment, for example the “Augsburg Innovationspark”. Here too, the fact that skilled personnel from different sectors settle in the geographic area contributes to enhancing the innovation and competitiveness of the region.

Project title:

clusTRAIN

Brief description:

The project has designed a cross-cluster training measure that offers skilled personnel fast, high-quality training in line with relevant requirements.

Clusters involved:

- Mechatronik & Automation Management gGmbH cluster (coordinator)
- Carbon Composites e.V. (partner)

Industries:

Aerospace, automotive, mechanical and plant engineering

From the prototype of a cross-sector training measure to the stabilisation of cluster teamwork

The two fields of technology of lightweight engineering/CFRP and mechatronics & automation were brought together for the first time in an institutionalised form here. Based on this, further professionalisation and an expansion of measures offered is conceivable.

Possessing up-to-date knowledge plays a key role in the ability to innovate for companies in both clusters. The fact that dynamic knowledge growth in fibre composite technologies and mechatronics sectors is very high makes it especially important for clusters to provide structures for life-long learning.

With the results from clusTRAIN, companies can actively provide further life-long training for their employees at the mechatronics/lightweight engineering interface. The training measures of the clusters play an active part in HR development at the companies. Furthermore, in view of demographic change, life-long learning for the ageing workforce is crucial to a company’s successful future existence.



Thomas Helfer



Katharina Lechler

Interview with Thomas Helfer (Mechatronik & Automation Management gGmbH) and Katharina Lechler (Carbon Composites e.V.)

How did you join forces to develop the concept?

Of course we used all forms of communication, such as telephone conferences and emails. However, we finally came to the conclusion that personal contact was essential both for motivation and for project progress. We are in the fortunate position that both of our clusters are located in Augsburg, and are therefore close enough to permit face-to-face meetings without any difficulty. After all, this is the principal intention of the cluster idea that played a key part in the success of the project.

What specific intersections between the innovative areas of mechatronics and carbon fibre reinforced plastics are particularly important in the training programme you developed?

An innovative material such as CFRP can only achieve a breakthrough by utilising the potential of series production. This requires a high degree of automation and therefore a broad range of mechatronics know-how. We cover this subject, for example, using the seminar “Automated handling of unstable semi-finished products”.

How is the new programme being received by the cluster members? Have a lot of them registered for the courses?

Due to the numerous queries and positive feedback from our cluster members, we have decided to comprehensively expand our collaboration in the area of training beyond the seminar in the project period.

What percentage of this training programme entails practical training?

It makes educational sense to maximise the practical part, which is something we aim to achieve in many of our cooperative seminars. After all, our two technological areas offer particular potential in this respect. Around half of our seminars contain practical elements.

Have you been able to convince other industries or educational institutions, for example, of this concept?

We would be happy if our idea for interdisciplinary training were to be adopted by other clusters/education providers.

**Contact**

www.cluster-ma.de

Mechatronik & Automation Management gGmbH cluster

The Mechatronics & Automation cluster combines the disciplines of mechanics, electronics and IT. It supports its actors in the design, development, and production of mechatronics systems and supports cooperation between industry and science aimed at achieving innovations in the areas of mechatronics and automation.

Facts and figures

Areas of innovation: Mechanics, electronics, IT

State: Bavaria (Germany)

Year established: 2000

Members: 166

Of which SMEs: 88

**Contact**

www.carbon-composites.eu

BrainsBusiness

Carbon Composites e.V. (CCeV) is a network of companies and research facilities covering the entire value chain of heavy duty fibre composite materials. CCeV links research and industry in Germany, Austria, and Switzerland. CCeV places particular focus on securing skilled manpower.

Facts and figures

Areas of innovation: Fibre composite materials

Countries: Germany, Austria, Switzerland

Year established: 2007

Members: 273

Of which SMEs: 138

First online capacity exchange for measuring devices and production machinery in photonics



The online capacity exchange allows the maximum potential of measurement and production possibilities in optics production to be exploited.

Optics production needs several measuring devices which are usually expensive to buy and maintain. The situation is similar for production equipment in this industry. At the same time, these devices are not always in use or are only needed for a single measurement. This prompts the question of whether it would make better sense to share purchases of this nature. The Optence e.V. and Swissmem clusters have recognised this interest on the part of their members and now take care of setting up and permanently maintaining an online capacity exchange in optics production that reveals existing capacities and requirements of measurement and production devices to cluster actors.

From isolated personal contacts between those seeking and offering devices to a complete database for all

Numerous member companies of the Optence e.V. cluster and the Swissmem association work in the field of optics production and use corresponding production machinery

and measurement technology equipment usually associated with high procurement costs. This machinery and measurement equipment is often not fully utilised and thus could be used otherwise.

Until now, the exploitation of surplus capacity of existing measurement and production potential in optics production was only possible by means of personal contacts. Those seeking and offering capacity contacted each other by phone or email or acquired information via a third party. One prerequisite for this, however, was that the person looking for equipment was aware of which equipment the other companies had. Usually, this meant that only one or two companies came into question because there was very little contact to other companies.

Establishing an online capacity exchange that provides information on existing measurement and production possibilities in a specific region results in greater capacity utilisation of the machinery. This benefits both, bidders due to the fact that their machinery remains in operation, and

those searching for machinery, for example in the case of production bottlenecks. This service is now offered all over Germany.

This exchange considerably increases the flexibility of companies. Major orders now do not need to be turned down because machinery is at its limits, but can be met using the production lines of other companies. If, on the other hand, the company's own machinery and production lines are not working to full capacity, they may be used by others, thereby generating additional income for the company that owns them.

In practical terms this means: all members of both the Optence e.V. network and the Swissmem network have been asked about the capacities of their measurement technology and production lines. With the data collected a fully functional capacity exchange, which can be supplemented at any time by further machinery, is now in operation. Currently, the database contains 31 measuring devices and 54 production machines.

Companies decide which measuring devices and production lines to make public. Furthermore, they can set their own prices and select their partners themselves. The database is constantly updated. Companies have to submit their free capacities themselves and keep the data up-to-date.

Using this - thus far unique - online capacity exchange in the area of photonics, available measurement and production potential in the innovative field of optics production and their current capacities can be made visible and usable to all actors from both clusters.

The capacity exchange as starting point for co-operation projects

In principle, it will also be possible for companies outside the cluster to use the service for a charge in the future.

The incorporation of other clusters is also a possibility. Examples across industrial sectors include overlaps from medical engineering in the area of measurement technology and production. Other networks from the optical technologies sector in different regions can also be integrated. Further special interest groups that can be integrated include "dimensional measurement technology" or "plastics technology", with which the Swissmem cluster cooperates.

Project title:

Photonics capacity exchange

Brief description:

The clusters in this project have jointly developed a capacity exchange for expensive specialist machinery, in particular measurement and production machinery, in order to best exploit the capacity of this machinery within the network.

Clusters involved:

- Optence e.V., optical technologies competence network (coordinator)
- Swissmem, photonics special interest group (partner)

Website:

www.kapazitaetenboerse-optence-swissmem.com

Industries:

Optical technologies, photonics

In future, the capacity exchange will continue to bring the members of both clusters together. The initial "lending of equipment", in which the actors get to know each other, will ideally result in the creation of lasting contacts on the basis of which new project ideas can develop and which enable acquaintances to become partners.

Basically, the concept can be transferred to other clusters and sectors where companies work with cost-intensive machinery that cannot always be fully utilised.

The cooperation between Optence e.V. and Swissmem expands the range of cooperation partners for all members.



Daniela Reuter



Brigitte Waernier-Gut

Interview with Daniela Reuter (Optence e.V.) and Brigitte Waernier-Gut (Swissmem)

What led you to start this cross-cluster project?

The trigger was a conversation with a member. During this conversation, the member expressed satisfaction with the services provided by the cluster and stated a wish for an additional service, namely the ability to offer production capacities online. The overall concept of the exchange for measurement technology and production developed from this idea.

How many actors already use the capacity exchange?

The actors from both associations, some 110 companies and institutes in total, have access to and use the exchange. The exchange makes it possible to initiate contact – consciously, without checking which partners do business with each other.

How are the fears of actors alleviated that specifying free capacities might give the impression of a poor order situation?

The exchange is only accessible to members of Swissmem and Optence. As a partnership based on trust is practised within the networks, and everybody knows from their own experience that all companies have periods when equipment is idle, publicising capacities is no great hurdle. If concerns exist, however, companies can take a look at posted searches and consider whether they can make an offer here.

Is the exchange merely offer-led, or are search requests also put online?

As I mentioned, in addition to the “Offer” area, there is also a “Search” area. Search ads can be placed here. The ad can specify contact data or, if preferred, can be published using a box number via Optence or Swissmem.

**Contact:**

www.optence.de

Optence e.V.

Optence e.V. is the network of skills for optical technologies in the Hesse/Rhineland Palatinate region. Established in 2001, the network unites 71 members from industry, research, education, and consultancy centres. Optence has the Silver Label of European Cluster Excellence.

Facts and figures

Areas of innovation: Optical technologies

State: Hesse/Rhineland Palatinate (Germany)

Year established: 2001

Members: 71

Of which SMEs: 49

**Contact**

www.swissmem.ch

Swissmem association

The Swissmem association unites the Swiss mechanical engineering, electrical and metal industries as well as associated technology-oriented sectors. Swissmem has 1,050 members organised in 26 industry-sector-specific groups. The photonics special interest group currently has 42 member companies (34 of which SMEs) and universities from the area of photonics.

Facts and figures

Areas of innovation: Mechanical engineering, electrical and metal industry, photonics

Countries: Switzerland

Year established: 1999

Members: 1,050

Of which SMEs: 840

German-Danish cross-cluster cooperation in “intelligent logistics”



Building bridges and combining IT with logistics are the objectives of “Hamburg meets and links” – symbolically illustrated here by Hamburg’s Köhlbrand Bridge.

Well-managed internationalisation processes in the cluster are crucial to the success of cluster actors engaged in transnational activities. Companies in internationally oriented clusters benefit from support when getting to know new foreign markets. Academics benefit from exchanges with colleagues from overseas.

Collaboration between the Logistik-Initiative Hamburg and the Danish BrainsBusiness cluster made sense in the logistics and IT area. Both clusters were conducting a programme that enabled companies and scientists to visit each other’s country and work together in a concerted manner.

Logistik-Initiative Hamburg and BrainsBusiness have some 400 small and medium-sized companies and around 10 universities and research facilities among their members, whose interest in long-term and creative exchange processes have been met by this project.

Special support for the internationalisation of SMEs

Many companies are familiar with the situation: trips for entrepreneurs, matchmaking events and other ways of bringing people together are often undertaken in the course

of an attempt to expand into the international market. These measures are frequently of little help because they are not tailored to the needs of the company. The two clusters BrainsBusiness and Logistik-Initiative Hamburg recognised the need for a systematic exploration of the overseas market and therefore developed a cross-cluster and transnational internationalisation strategy.

With concrete objectives for international partnerships

Right from the start, the clusters Logistik-Initiative Hamburg and BrainsBusiness Denmark focussed their respective internationalisation strategy on developing new international partnerships with whom shared support and business opportunities could be identified and exploited. Collective activities and the regular exchange in this partnership are now all the more able to boost the already existing expertise.

Both clusters worked closely in advance of this project with ministries, professional associations and companies relevant to the industry. As such they have extensive experience in recognising development trends at an early stage and offering targeted, local support. What is special about this transnational cooperation is that it has been developed

systematically. For this purpose, logistics and IT companies together with research facilities were supported in setting up and expanding transnational contacts in order to make best possible use of the European market. This primarily involved the bespoke development both of academic and B2B partnerships. One objective of the cross-clustering project is also to generate funding applications for research and development projects. The first meetings between the actors involved were used to identify commonalities and points of reference for potential development projects and to create initial ideas. In this regard, the actors in the clusters have numerous points of connection and commonalities with which they can become even more visible on the market through international collaboration.

Targeted industrial focus led to two effective manager missions

The systematic setting up of this transnational, sustainable cluster cooperation started with an analysis of the technologies and processes of both clusters. As a result, the exchange programmes could be tailored directly to the actors' needs. Representatives from industry, politics, science and research therefore met within a framework that had been precisely defined beforehand. This allowed a clear focus and led to a considerable increase in the success rate when exploring joint ideas and starting subsequent projects. The trips and content development had been organised beforehand by the cluster managers. Dates for meetings were agreed, visits to companies planned, project presentations prepared and contact events conducted.

The areas of interest of mission participants had already been identified during a workshop, as had the business opportunities and support options. Armed with this information, the relevant companies were mobilised for the exchange. The companies prepared expert profiles with corresponding cooperation wishes for this. Partners for some 60 bilateral initiation meetings were selected from the catalogue that ensued.

Participants received intensive support both before and after these two delegation visits. This entailed a detailed market observation, including bringing together further potential partners and extensive support in implementing project approaches.

Project title:

Hamburg meets and links

Brief description:

The project facilitates the cross-cluster and transnational networking of actors from two clusters in Germany and Denmark, by systematically bringing together partners from logistics and IT with complementary skills, resources, and innovation components in order to set up innovation and business processes.

Clusters involved:

- Logistik-Initiative Hamburg e.V. (coordinator)
- BrainsBusiness Denmark, ICT North Denmark (partner)

Industries:

Logistics, information and communication technologies

This successful concept will in future be applied to further clusters on the international market

The delegation visits and associated preparations and follow-up work on the knowledge and information transfer were the foundation stone for the new cooperation strategy of both clusters and for the future operational framework.

In the medium term, the established cross-cluster knowledge, innovation and resource management will be transferred to other clusters and regions. The vision of both clusters is for international expansion and the strengthening of the international orientation of companies and research facilities in the clusters. This includes technology transfer and setting up business-related research and development networks beyond the areas of IT and logistics.

Numerous cross-sector approaches for new research and development projects can be generated with "Hamburg meets and links", whose realisation and implementation immediately illustrates the success of this collaboration.



Anja Gröger



Birgit Pia Nøhr

Interview with Anja Gröger (Logistik-Initiative Hamburg e.V.) and Birgit Pia Nøhr (BrainsBusiness)

How did you find out about each other?

We got talking at the second BSR Stars-Cluster-to-Cluster-Conference at the Federal Ministry for Economic Affairs and Energy in September 2014 and agreed that we would exchange thoughts regarding future project ideas and possible cooperation. In October 2014, Birgit Nøhr came to Logistik-Initiative with the idea for “Hamburg meets and links”, which we have jointly developed continuously since then and which ultimately led to the project application.

How is the collaboration between the clusters regulated? Are there written agreements?

There is no written agreement in form of a contract, for example. The collaboration took place on the basis of close cooperation and communication characterised by mutual trust.

How has the project been received by cluster members?

A great deal of work on motivation and raising awareness was required in order to explain the skills available in the Aalborg IT scene to companies in Hamburg. Only a few experts knew that Aalborg is one of the most innovative regions for the IT sector in Europe. It was easier persuading the Hamburg companies that already have contacts to Danish companies to take part in the project. By contrast, there were no problems at all with universities and research facilities.

How was the preliminary work of both clusters integrated in the cross-cluster process?

In advance, strategic topics were identified for both cluster organisations and laid down as ‘theme parks’ for the pending manager missions. Promising future areas and technology sectors could be defined with the help of the theme parks, indicating an overlap of both clusters for the mission team as well as areas for potential partnerships.

Which transnational projects have commenced since then?

The two manager missions were used to build up mutual trust, introduce respective expertise and examine cooperation opportunities and links. Concrete projects have not yet begun therefore. However, consultations are under way, for example concerning planned R&D projects between universities and companies from the two regions. The possibilities of a joint trade fair presence by the two cluster institutions have also been sounded out.

**Contact**

www.hamburg-logistik.net

Logistikinitiative Hamburg e.V.

The Logistikinitiative Hamburg e.V. cluster supports the expansion of the logistics metropolis of Hamburg. This covers the need for a skilled labour force, the transport infrastructure and international networking of actors in the cluster. In addition, workshops, working groups and conferences are organised to discover innovation potential in the cluster at an early date.

Facts and figures

Areas of innovation: Logistics

State: Hamburg (Germany)

Year established: 2006

Members: 514

Of which SMEs: 308

**Contact**

www.brainsbusiness.dk

BrainsBusiness

The Danish cluster organisation BrainsBusiness has its headquarters in Aalborg. It unites companies and research facilities from the areas of transport and logistics, telecommunications, smart grid, business intelligence/big data, life sciences, embedded software systems and IT services.

Facts and figures

Areas of innovation: Business intelligence, cross media and digital experiences, data-intensive systems, e-Learning, electronics, embedded software systems, healthcare, human-computer interaction, IT services, smart grid, transport and logistics

Countries: Denmark

Year established: 2007

Members: 155

Of which SMEs: 140

Food packaging is getting safer, more intelligent and environmentally friendly



The collaboration between the food industry and the packaging industry offers great innovation potential.

The demands placed on the range of services in food packaging have grown steadily in recent years. From a functional point of view, they must on the one hand protect products from external influences and damage, while on the other hand keeping goods fresh for as long as possible and contributing to their ability to be transported and stored. At the same time, food packaging must meet ever higher aesthetic demands to differentiate itself from similar products and by doing so, create lasting customer loyalty. The food industry works closely with the packaging industry and other sectors to meet these requirements. The “foodRegio” cluster sees great innovation potential in this collaboration, and therefore aspires to a cross-sector network of relevant actors.

Packaging food – a demanding task

Process and production innovations in the area of food packaging are vital to meet increased expectations and to successfully position products from the food industry on the market in future. Many related industries have an important role to play here. It is hardly possible for actors to perform these tasks without partnerships and networking, which makes collaboration in networks essential. The first issue at the start of the project was therefore identifying

active clusters in relevant fields of technology. Here it was possible to identify the Swedish packaging and logistics cluster “Packbridge” and the Spanish “Packaging Cluster”. The “CrossFoodPac” project therefore deliberately connects the food industry to other sectors. As a result, the foodRegio cluster and its actors make a substantial contribution to innovation oriented collaboration and simultaneously to novel developments in the area of food packaging.

CrossFoodPac technology roadmap

Roadmapping, which is frequently applied by innovation management in particular, was the method chosen for the CrossFoodPac project. The roadmap is intended to describe requirements and technologies that may produce potential process and product innovations in the food industry in terms of food packaging. A three-step procedure was selected accordingly to draw up the CrossFoodPac technology roadmap:

- Identification of future market drivers for food packaging;
- Identification of (new) packaging functions for food packaging; and
- Identification of relevant technologies for this.

The finished CrossFoodPac technology roadmap is an important source of information about the opportunities, possibilities and requirements in the food and packaging industry.

Active networking of cluster actors using workshops

Market drivers, packaging functions and technologies were identified and analysed on the basis of secondary sources and by conducting a total of three moderated, cross-network workshops with representatives of the food industry and packaging industry. To be precise, these were as follows:

- A workshop with 27 representatives of the North German food industry on 25.02.2015 in Lübeck;
- A workshop with ten representatives of the Swedish packaging industry on 04.03.2015 in Malmö;
- A workshop with 14 representatives of the Spanish packaging industry on 04.06.2015 in Terrassa (Barcelona)

The findings established during these three workshops supplemented the data and facts obtained from literature research.

The evaluation of workshop results showed that, when viewed as an average from the perspective of all cluster actors, the packaging functions of traceability, recycling and waste reduction indicated the greatest potential for meeting the requirements of the market drivers described in the CrossFoodPac technology roadmap. Packaging functions such as medical compliance or efficiency gains were, by contrast, rated lower and will consequently be deemed less relevant. In general, future packaging functions from the prime areas of recycling/disposal and transport/storage are considered to be the most important.

With respect to product-related packaging technologies, active and intelligent packaging is viewed by cluster actors to be the most promising technologies for achieving the specified packaging functions in the future. By contrast, new technologies in the area of genetically modified packaging materials play a minor role.

In the case of the process-related packaging technologies, printing is cited as the most promising technology for meeting the requirements of future packaging functions. New machine technologies are judged to be less important.

Project title:

CrossFoodPac



Brief description:

By setting up cluster partnerships, the project makes innovation potential in the food packaging industry obtainable through the technology transfer from other industries visible and usable.

Clusters involved:

- foodRegio Branchennetzwerk Ernährungswirtschaft Norddeutschland e.V. (coordinator)
- Packbridge (partner)
- Packaging Cluster (partner)

Industries:

Food industry, food processing, packaging industry, logistics

These three workshops covered the key concerns linking the food industry and the packaging industry. This gives actors from the food industry a substantial information advantage, with which research results, technologies and applications can be transferred more quickly to the packaging area within the food industry.

Further industry links are conceivable in future

The collaboration of companies from the food industry with many other sectors offers great potential for other innovative projects. From an ecological perspective alone, numerous questions arise concerning the environmental compatibility of packaging from its creation to its disposal or recycling. The incorporation of other industries such as biotechnology is essential for matters concerning natural packaging.



Prof. Dr. Björn P. Jacobsen

Interview with Prof. Dr. Björn P. Jacobsen (foodRegio)

Who did you first approach with your idea for setting up a cross-sector network?

As a result of the regular and lively exchange with our members in the working groups, we have long been aware of a deep and cross-company interest in the subject of “food packaging”. Among other things, the high significance of the subject for our network reflects the fact that we put food packaging at the centre of our 9th foodRegio trend day for the North German food industry. Two project partners were very quickly found in “Packbridge”, the Swedish packaging and logistics cluster that has been a very close partner of foodRegio since 2013, and the Spanish “Packaging Cluster”, both with sound expertise and a wealth of experience, to initiate a cross-sector network. Kick-off talks with both clusters were held by the cluster management in November 2014, reaffirming the interest in the joint development of a roadmap for a “cross-sector platform for innovative food packaging”.

Which companies have most benefited from this network so far, and in what way?

Of course the results carved out by the CrossFoodPac technology roadmap are of special interest to our members from the North German food industry. The CrossFoodPac project gives members of the foodRegio cluster access to knowledge from other sectors, a platform for exchange with potential cooperation partners, and enables them to develop innovative food packaging solutions together. All in all, the project makes a significant contribution to boosting the competitiveness of the companies involved. As such, the CrossFoodPac technology roadmap also forms the foundation for the future foodRegio “Packaging”

working group whose purpose is to identify cross-sector topics and initiate projects. For the foodRegio companies, the CrossFoodPac technology roadmap and the foodRegio “Packaging” working group simultaneously represent added value and a substantial head start compared to other companies because they are already able to address the technological requirements relating to “future food packaging” and exploit numerous synergy effects.

How do companies perceive the support provided by foodRegio?

The commitment of foodRegio in this important area is welcomed and respected by our members and naturally also closely followed. This is connected to the fact that the requirements regarding the range of services in food packaging in particular have grown steadily in recent years, and process and product innovations in the area are essential for companies in the food industry if they are to position their products successfully on the market in future. The active participation in workshops in Lübeck, Malmö, and Terrassa has again demonstrated the cross-sector relevance of this subject. There is a real need for new impetus and a great interest in mutual exchange concerning this topic in the foodRegio network; we are very pleased to have established the technical foundations through the CrossFoodPac project – on which we are now continuing to work systematically – and that we are able to help strengthen the competitiveness of our members and offer them considerable added value.



Contact

www.foodregio.de

foodRegio

Since 2005, foodRegio – the North German food industry network – has been active at very different levels to boost the competitiveness of its member companies. More than 60 members from all five northern German states take part in working groups dealing with specific subjects ranging from apprenticeship to certification, as well as in shared projects and campaigns.

Facts and figures

Areas of innovation: Food industry

State: Schleswig-Holstein, Hamburg, Mecklenburg-Vorpommern, Bremen, Lower Saxony (Germany)

Year established: 2005

Members: 66

Of which SMEs: 21



Contact

www.packbridge.se

Packbridge

Packbridge is a Swedish network whose objective is to connect the packaging industry to its diverse interest groups. The cluster organises several seminars and workshops and is therefore a neutral meeting point for representatives of the packaging industry.

Facts and figures

Areas of innovation: Packaging industry, logistics

Countries: Sweden

Year established: 2010

Members: 235



Contact

www.packagingcluster.com

Packaging cluster

The Catalan "Packaging cluster" deals with companies operating along the value creation chain in the packaging sector. The competitiveness of cluster members is to be increased at a national and international level through joint projects, research, and workshops.

Facts and figures

Areas of innovation: Packaging industry

Countries: Spain

Year established: 2012

Members: 556

Karlsruhe region: networking among company founders of the ICT and creative industry



Virtual networking creates real cooperation.

The combination of information and communication technologies (ICT) and the creative industry offers a wealth of opportunities for future-oriented projects, products and business start-ups. By setting up a common platform, the CyberForum cluster and the K³ Kultur- und Kreativwirtschaftsbüro Karlsruhe (Office for Cultural and Creative Industries in Karlsruhe) now facilitate the linking of both industries, in particular for the world of start-ups.

ICT and the creative industry are key motors for economic growth potential in the Karlsruhe region.

More than 4,100 companies from the ICT sector employing around 30,000 people and generating annual turnover of 5.1 billion euros are based in the Karlsruhe region. The CyberForum, which has over 1,000 members, is the biggest regional IT cluster in Europe. It links companies, universities, research facilities and public authorities.

Over 1,600 companies from the creative industry employing more than 13,600 staff with an annual turnover in excess of 1.1 billion euros are located in the Karlsruhe region. The Karlsruhe Center for Art and Media, which is in close proximity to the University of Arts and Design, in particular enjoys an international reputation. The K³ Kultur- und Kre-

ativwirtschaftsbüro Karlsruhe is responsible for connecting actors within the creative industry.

Bringing together the ICT and creative industries generates an almost inexhaustible amount of potential in terms of research and development opportunities along the entire supply chain. This innovative impetus can have a long-term impact on other branches of industry.

Virtual networking creates real cooperation

Both branches of industry are defined by a large proportion of innovative small and medium-sized enterprises with high growth potential.

Numerous support services are provided for these target groups by CyberForum and the K³ Kultur- und Kreativwirtschaftsbüro; these include start-up advice, events dealing with networking and training as well as support in establishing contact to investors, research and cooperation partners. Both clusters have their own start-up centres specifically for company founders – the “CyberLab” and “Perfekt Futur” – which support start-ups by providing office space, mentoring and access to networks.

But start-ups that are not yet sufficiently networked are frequently the very organisations that are inadequately informed about the diverse support services in the region. The “ClusterBook” platform is designed to present these services more transparently and clearly.

Ideas, interests and skills of members from both networks can be entered and searched for on ClusterBook. An environment that promotes transfer develops: new partnerships between the companies and research facilities of both clusters are created, making the planning and implementation of joint projects easier, and cross-cluster start-up teams can develop new business models.

Intelligent searching and finding

The platform is based on semantic database structures that provide an intelligent and contextual networking between members. Based on his profile, the user is given appropriate suggestions for networking, so that less time is taken with the actual search, leaving more time to navigate the many new suggestions (e.g. events, projects, companies) that would not have occurred to the user unaided. In the course of time each user recognises that the more active he is in the system and the more interests and profile data he specifies, the better and more diverse the results become. Access is possible using any internet terminal, which may be a tablet, laptop, or personal computer.

The user interface in ClusterBook is reminiscent of a radar and navigation system. At its centre is the registered user. Suggestions are generated and displayed in the outer areas of the radar view using the information stored about the user and generated by linking the central object with other objects and topics. Clicking on objects moves these into the centre. Discovering the clusters therefore becomes a flight through the networked data.

Through the interfaces to member and company profiles on the CyberForum and K3 Kultur- und Kreativwirtschaftsbüro, 1,306 profiles of organisations have been entered in ClusterBook in total, 1,280 of which are companies. The profiles cover 38 specific sectors of the creative and ICT industry. There are currently already 198 cooperation areas, i.e. topics for which companies are looking for cooperation partners for shared customer services.

Project title:

ClusterBook

Brief description:

The platform is designed to help promote cross-cluster partnerships by founders of companies in the IT and creative industry and make the support services more transparent.

Clusters involved:

- CyberForum e.V. (coordinator)
- K3 Kultur- und Kreativwirtschaftsbüro Karlsruhe (partner)

Industries:

Information and communication technologies, creative industry

www.clusterbook.de

Progress towards intelligent specialisation in the Karlsruhe region

The IT and creative industry gives the Karlsruhe region an unmistakable, highly competitive location profile with innovative business ideas. This specialisation is to be increasingly expanded in future. In addition to ClusterBook’s pilot target group of actors from the start-up environment, all other members of the cluster and their specific strengths are to be incorporated. Moreover, supplementary measures are planned in addition to the prototypical implementation of the ClusterBook platform in order to utilise the whole innovative potential of the region.

Early contact to students planning to start their own business and the close networks that already exist should also help generate further promising cross-cluster business models. Among other things, even closer collaboration in the area of software user interfaces, trial use of novel technologies in games development, the initiation of joint research projects or shared use of living labs to test technologies and design concepts are conceivable.

Interview with Kerstin Weber-Sanguigno (CyberForum)

How did you approach the K3 Kultur- und Kreativwirtschaftsbüro Karlsruhe?

K3 is the established contact point for the creative sector in the Karlsruhe region. We got in touch directly with Mr. Metzger, who is the contact responsible for the creative environment at K3. He immediately recognised the potential of ClusterBook and confirmed his involvement.

How many visitors does the platform have now?

The support period was designed as a pilot project, so 20 users were invited from each of the two clusters to test the platform in the beta phase. Following this, 620 recipients of the start-up newsletter were invited by email in several stages to use www.clusterbook.de. The response to these invitations in the form of user registrations remained far below expectations, however. Currently approx. 15 active users are registered.

Where did or do current challenges lie, and what adjustments still need to be implemented?

The technical implementation of the platform has finished and is functional. The challenge yet to be mastered is updating the data stored there to achieve the critical mass of active users on the platform. This is proving to be more difficult than originally assumed because it adds another option for companies alongside the commonly used platforms such as XING and Facebook.

Which cross-cluster projects have already been implemented or supported using the platform?

It has not been possible for any cross-cluster projects to come about yet because we are still in the pilot phase. There has, however, already been work on joint projects of the two clusters using the platform, thus reinforcing the cooperation. (www.bizplay.org and <http://hackathon.pioniergarage.de>)

In what way can you envisage expanding the platform concept?

The next step must be to widen the user group and to inspire users on the basis of successful examples during the beta phase to update their profiles accordingly. This not only widens the community, but also enables further trend topics to be identified more easily and quickly. As user numbers increase, so do the common fields of interest and focal points.

Do any legal restrictions exist for use of the platform, and if so, how are these communicated?

There are no legal restrictions.

Contact

www.cyberforum.de

**CyberForum e.V.**

CyberForum e.V. with over 1,000 members is the largest regionally active high tech entrepreneur network in Europe and links companies, company founders, investors, skilled personnel, research facilities, universities and administrative bodies. In 2013, the CyberForum was recognised as the most successful cluster in Baden-Württemberg and the leading IT network in Europe.

Facts and figures

Areas of innovation: Information and communication technologies

State: Baden-Württemberg (Germany)

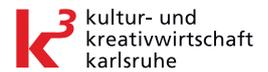
Year established: 1997

Members: > 1,000

Of which SMEs: 900

Contact

www.k3-karlsruhe.de

**K³ Kultur- und Kreativwirtschaftsbüro Karlsruhe**

The K³ Office for Cultural and Creative Industries in Karlsruhe is a joint institute of the Cultural Office at the Culture Department and the Karlsruhe Economic Development Department. It offers advice and coaching, numerous event formats for the culture and creative industry, especially for business start-ups and company development, as well as networking programmes beyond the classic industries.

Facts and figures

Areas of innovation: Culture and creative industry

State: Baden-Württemberg (Germany)

Year established: 2012

Members: No association structure

Of which SMEs: 140

Quality through quantity – crowd innovation and funding



International cross-cluster workshop on “Drones and their possible applications in agriculture in Bolzano, Italy” in July 2015.

The entrepreneur S. has a brilliant idea that Europe’s farmers have long been waiting for. His “Agricopter” drone destroys the feared corn borer pest from the air in an environmentally friendly way. Entrepreneur S. has no capital resources, however. And he is on his own.

Many young entrepreneurs are in a similar situation to S. Crowdfunding and crowd innovation enable them to get going. It quickly gives them the necessary funding, as well as technical and moral support. Crowdfunding and crowd innovation are still relatively unknown in Germany. However, they could be used to lever a vast innovative potential that is often abandoned due to uncertainty and even frustration, and make this profitable.

Advantages of the crowd

With crowdfunding, public capital is raised on an online platform. A crowd of people (mass of donors) donates sums of money because they believe in the success of the proposed project. This forms the company capital needed. The idea originates from the cultural field. Musicians and other artists funded their projects using the crowd. In the USA in particular, crowdfunding has already become established in many other sectors. The full power of the model is unleashed when crowdfunding and crowd innovation are combined. In the case of crowd innovation, the entrepreneur keeps “his crowd” informed on internet platforms or in blogs and discusses his progress with crowd members.

Usually, crowd innovation even goes before crowdfunding because the entrepreneur can first test his ideas here and inspire a crowd to contribute to funding using advertising campaigns.

The advantages of crowdfunding and crowd innovation, separately or in combination, are plain to see: the entrepreneur obtains permanent feedback about his idea. This gives him certainty, self-confidence and valuable product and market knowledge. The crowd is interested in the subject, because people generally invest in a project that they feel strongly about. Sales and cash flow become reality at an early stage through the contact to potential customers in the crowd. Crowdfunding as a supplement to equity or classic loan is a simple option.

SmartFund exploits innovative potential

The clusters Satellitennavigation Berchtesgadener Land – Salzburg, GEOkomm e.V. from the region of the German capital, the Civil Protection & Alpine Safety cluster from Bolzano and the ICT cluster in Bern operate in the young, highly innovative specialist area of location-based, satellite supported applications and services with numerous small and medium-sized enterprises. It was therefore vital to offer their more than 350 member companies comprehensive information and assistance about crowdfunding and crowd innovation. A service concept was developed within the cross-cluster “SmartFund” project with which the actors

could develop crowd-supported projects from innovation to funding.

Cluster companies as crowd

The service concept is divided into various modules: the cluster managers first offered subject-related workshops for interested entrepreneurs in their region. The cluster actors got to know each other and were already able to identify partners for potential innovation projects. The international networking of partner companies was promoted through the participation in various workshops.

The service to support innovation starts with crowd innovation – in the case at hand, with market feedback for cluster companies. To achieve this, the person with the idea can select which customers he wishes to define as a crowd, for example on the internet platform www.cluster-crowd.com, and can obtain ideas about implementing a topic. In order to check the initial feasibility of a project, questions are asked about whether the project objectives have been clearly formulated, whether there is a target group for the product or service, the form and size of this target group and the amount of funding required.

To prepare the crowdfunding campaign, an e-Learning service was set up at www.smartfund.jetzt for cluster members to request fundamental help on the subject. Participants in the SmartFund project are therefore given extensive support for their projects, enabling them to develop ideas and utilise crowd-supported measures. The options for implementing innovative projects can be estimated very accurately at an early stage by means of crowd innovation. The actors are supported by cluster managers throughout the entire innovation cycle.

Crowd funding as the key to international markets

Actors from Bavaria, Berlin-Brandenburg, Austria, Italy and Switzerland came together through cross-cluster cooperation. The four clusters represent everybody, from developers to end customers. This created a rich array of consumers and suppliers, whose interaction could be used to develop completely new concepts and ideas – a classic example of crowd innovation.

Project title:

SmartFund

Brief description:

The SmartFund project enables cluster actors to use new methods of market feedback and modern funding methods in the area of location-based and satellite supported applications and services. This further expands domestic and international development and business opportunities.

Clusters involved:

- Satellitennavigation Berchtesgadener Land – Salzburg, Germany (coordinator)
- GEOkomm/Verband der GEOInformationswirtschaft Berlin/Brandenburg e.V., (partner)
- TIS Innovation (Civil Protection & Alpine Safety cluster), Italy (partner)
- ICT Cluster Bern, Switzerland (partner)

Clusters involved:

- FunderNation GmbH, Germany (experts)
- Crowd Mentor Network, Germany (experts)

Industries:

Digital economy, geo-information technologies, information and communication technologies, security technologies

www.smartfund.jetzt

This international cooperation significantly boosts the visibility and competitiveness of the companies and scientific institutions. Furthermore, there is greater motivation for companies to become involved in the joint and transnational execution of projects.

Crowdfunding is becoming known as a funding method beyond the four regions already taking part as a result of the business connections already initiated between the participants and their successful marketing. With their support, the service developed here can be transferred to other sectors, clusters and countries.



Lars Holstein

Interview with Lars Holstein (Satellitennavigation Berchtesgadener Land – Salzburg)

Why do you think that crowd-supported measures might be a successful funding concept in your fields of technology?

Several of these usually small and medium-sized companies are extremely innovative and develop new products and services for which funding is not always easy to obtain. The risk is too great, and early feedback from the market is particularly important to avoid making mistakes in product development. For this reason crowdfunding is perfect for our partner companies.

How is this service perceived by the cluster members?

Until now, there has been considerable scepticism that really successful development budgets can be mobilised here. Lots of entrepreneurs are also wary of the input required on their part to produce a functional campaign. Many of the companies have not yet recognised the potential that can be achieved here not only in terms of money, but also with regard to feedback and publicity. However, a great deal of work is now taking place to increase awareness of this issue; this represents part of the service and the basis for all further work.

How did you learn of the international partners?

Contacts with the South Tyrol innovation agency already existed as a result of an entrepreneur visit by cluster members. It was possible to find further partners during events in the “go-cluster” programme.

How does the transregional collaboration work?

We had and continue to have regular contact by phone and email, but also through regular phone conferences and through the several workshops conducted this year. The

respective cluster is then responsible for local activities. Basically, transregional and even international partnerships present a greater challenge for project management, especially with respect to motivating individual partners and compliance with jointly agreed milestones.

Which modules of the services are most in demand?

The demand for concrete support in possible crowd-supported projects has been low so far. Information is accepted with interest and discussed at network events, however. Slowly people are starting to change their views. Continuous educational work in workshops is therefore currently the most important pillar of the service, ensuring that cluster members do not get left behind with this development and that they continue to be informed about sources of funding and remain competitive in the future.

What reservations concerning crowdfunding still need to be overcome by cluster actors?

As I said, there is a great deal of scepticism that money can actually be successfully raised in this way. There are also reservations regarding clarity of the rules and the long-term nature of funding. Due to the associated feeling of familiarity, traditional methods such as government subsidy programmes and/or private (individual) investors promise greater security. Sometimes there is also a perception that crowd-supported measures only work for purely consumer products and the creative industry

Which cross-cluster crowd-supported projects have already commenced since then?

The joint AGRI-Copter project by the German company Dialogis and the Italian company Soleon was identified as a possible crowd-supported project and supported accordingly through educational work and the mediation of contacts. The solution offered declares war on the corn borers feared by farmers using the drones specifically developed for this purpose. However, no decision has been made (yet) in favour of a crowd-supported campaign. Of course traditional funding also remains a possibility and is therefore being examined as an alternative by the companies.



Contact

www.satnav-bgl.eu

Satellitennavigation Berchtesgadener Land – Salzburg

The Satellitennavigation Berchtesgadener Land – Salzburg network develops, produces and markets highly innovative navigation and geographic applications. In the network, start-up companies, established medium-sized companies and well-known scientific institutions form a unique combination of innovative spirit and scientific and practical competence.

Facts and figures

Areas of innovation: Information and communication technologies, navigation technologies, and location-based digital solutions

State: Bavaria (Germany)

Year established: 2005

Members: 50

Of which SMEs: 25



Contact

www.geokomm.net

GEOkomm

The objective of the Verband der GeoInformationswirtschaft Berlin/Brandenburg GEOkomm is to increase the understanding of the technical, economic and societal relevance of geo-information and actively promote a dialogue to further develop the geographic data market.

Facts and figures

Areas of innovation: Geo-information industry

State: Brandenburg (Germany)

Year established: 2002

Members: 70

Of which SMEs: 40



Contact

www.tis.bz.it/de/cluster/alpine-sicherheit

Civil Protection and Alpine Safety cluster

The area of civil protection and Alpine safety is a strength of South Tyrol, and one in which 52 South Tyrol companies and institutions already operate successfully. The Civil Protection and Alpine Safety cluster was founded at the TIS Innovation Park, the innovation agency for South Tyrol, and offers a platform to strengthen competitive and innovative ability of the companies.

Facts and figures

Areas of innovation: Safety technologies

State: South Tyrol (Italy)

Year established: 2010

Members: 52

Of which SMEs: 41



Contact

www.tcbe.ch

ICT cluster Bern

The cluster in Bern is a collection of more than 220 companies, training institutes, associations, and authorities, with the objective of reinforcing the subject and sector of telecommunications and IT (ICT). With its broad support and targeted activities, tcbe.ch is a strong partner in telecommunications and IT.

Facts and figures

Areas of innovation: Information and communication technologies

Country: Bern (Switzerland)

Year established: 1996

Members: 220

Of which SMEs: 192

Medical technology and biotechnology towards a joint network



The managing directors of biosaxony e.V., André Hofmann, and of BioRegio STERN Management GmbH, Dr. Klaus Eichenberg, welcome the successful start of the project “Action Plan for Medical Technology”.

The future potential of medical technology and biotechnology can be increased many times over if both sectors recognise and exploit their intersections. This process of uniting both technologies can be made easier if industry networks already exist.

The biosaxony e.V. network from Saxony and the BioRegio STERN Management GmbH network from the Stuttgart region joined forces with the aim of converging medical technology and biotechnology within the “Action plan for medical technology” project, and developed a common plan for the future between March and November 2015. biosaxony e.V. is the life sciences network in Saxony that focuses on biotechnology. BioRegio STERN Management GmbH as an inter-municipal business development organisation promotes the development of the life sciences sector in the German cities of Stuttgart, Tübingen, Esslingen and Reutlingen as well as in the Stuttgart and Neckar-Alb regions.

Uniting two related sectors with different structures

Converging medical technology and biotechnology can, in future, ensure a high number of product and service innovations and cross-sector solutions for the health industry. Joint areas for research and development are present in diagnostics, in regenerative medicine or the development of intelligent implants, for example.

Despite countless overlaps, there are many structural differences between the industries, so that joining the two fields of technology necessitates targeted support. One key difference is the differing degrees of maturity of both sectors: from a historic point of view, medical technology is more a classic, established sector associated with technology. By contrast, biotechnology as a key technology has a scientifically defined background with strong research structures. Both sectors are characterised by different scientific and technical careers of the actors, dissimilar network structures and different “languages”.

The biosaxony e.V. and BioRegio STERN Management GmbH clusters have recognised that the innovation po-

tential of both sectors lies in joining the two together. The networking of actors was promoted using the “Action plan for medical technology”. Close dialogue was the basis for cross-sector partnerships between companies and the development of project ideas for new health technologies.

The collaboration between the clusters led to new cooperation potential for actors. Each was able to expand its own technological expertise. In addition to access to technical and manpower resources, the development and marketing of innovative products and therapies were driven forward.

As an inter-municipal business development organisation, BioRegio STERN Management GmbH from Baden-Württemberg has been supporting the regional development of the life sciences industry since 2001. The concentration of biotechnology companies in combination with a large number of medical technology companies is a unique selling point for the region. For years the “Biotech & Medtech” skills network at BioRegio STERN Management GmbH has linked the two sectors, and in doing so has stimulated innovation in the region.

In Saxony, biotechnology is organised within biosaxony e.V. By contrast, there is no organisational structure for medical technology. The two clusters have defined common resolutions to meet the demands of both sectors and to promote innovations at the interface between them. The long-term objective of the project is to create an organisational structure for medical technology in Saxony.

Establishing this organisational structure has allowed biosaxony to benefit from BioRegio STERN’s longstanding experience with networking medical technology and biotechnology. In turn, biosaxony offered BioRegio STERN access to several innovative Saxon companies and research facilities. The intention is that a separate cluster as an association of Saxon medical technology companies will emerge from the organisational structure created within biosaxony. Further networking with different sectors is likewise being planned. Mutual membership and a cooperation agreement between biosaxony e.V. and the leading European microelectronics cluster Silicon Saxony e.V. already exist. Another partnership with the Verein zur Förderung der Gesundheitswirtschaft in der Region Leipzig e.V. (association to promote the healthcare industry in the Leipzig region) was signed recently.

Project title:

Action plan for medical technology

Brief description:

The project links the sectors of biotechnology and medical technology, thereby pursuing the objective of identifying new areas of innovation. In addition, an organisational structure will be created for Saxon medical technology, modelled on that of BioRegion STERN Management GmbH.

Clusters involved:

- biosaxony e.V. (coordinator)
- BioRegio STERN Management GmbH (partner)

Industries:

Biotechnology, medical technology, healthcare industry

Advantages for all members

The medical technology network offers targeted help with the further development of products, supported by the marketing of products on domestic and, in particular, international markets, increases the international visibility of the sector by means of location marketing and establishes a site for actors with information about trends, regulations and funding opportunities. The content of the collaboration is regularly adjusted to suit the needs of cluster actors.

With this concept, the actors in the biosaxony cluster present an united front as a medical technology location, thus strengthening the identity of their region. They create new development opportunities through simplified access to research and new technologies and are given support when taking part in trade fairs and exhibitions.

BioRegio STERN can pass on its experiences combining medical technology and biotechnology, and gain further knowledge through the mutual exchange. The actors obtain contact to Saxon medical technology companies and to Saxon R&D facilities, can optimise their technology transfer, and expand their business footprint.



Dr. Madlen Schiller



Dr. Ann-Mareen Franke

Interview with Dr. Madlen Schiller (biosaxony e.V.) and Dr. Ann-Mareen Franke (BioRegio STERN Management GmbH)

How did the contact between the two clusters come about?

Schiller: The managing directors of both clusters have worked together for many years in the BioRegion working group and were therefore well aware of their respective activities.

Franke: With the “Discovering synergies: Medtech & Biotech” project that started in 2005, we were able to get actors from both industries around a table to allay any initial fears of contact and remove communication obstacles. Sharing this head start in experience with biosaxony e.V. and supporting the creation of an organisational structure in Saxony were key to this cooperation.

What led to the idea of linking the medical technology and biotechnology sectors?

Schiller: At biosaxony e.V. we were increasingly approached with questions about medical technology, both from research and industry, but also from political circles. Surveys in the cluster about workshop topics and trade fair participation frequently demonstrated overlaps to medical technology. Some of our members are equally active in both sectors.

Franke: As cluster managers, we attempt to promote the development of the regional cluster building on existing strengths and synergies. Biotechnology and medical technology are the major catalysts in the healthcare system, and we are convinced that cross-innovations set the pace for future success.

Which cross-sector projects have commenced since then?

Schiller: I would no longer describe them as cross-sector projects. In fact, this intersection represents a sector of its own. It cannot be clearly delineated according to medical technology and biotechnology. Both sectors enrich each other, and a new value chain is developing.

Franke: The first meeting of companies from BioRegio STERN and Saxony took place last October. Saxon representatives had the opportunity to visit BioRegio STERN companies. The current “2015 EY medical technology report” was presented in the evening, after which the entrepreneurs were able to exchange ideas and network. Once both clusters had got to know each other, we used the MEDICA 2015 for our medtech breakfast. This gave companies from the two clusters a chance to get to know each other better and to establish contacts and prepare the ground for business transactions. This opportunity was taken by many of the entrepreneurs, and new contacts were made.

How would you describe the unique selling point of the cross-clustering project?

Schiller: There have been efforts in the past to establish a platform for medical technology in Saxony, but never in association with biotechnology or with “external” partnerships. The collaboration with BioRegio STERN Management GmbH gave us an opportunity to learn from existing, established structures, while at the same time enabling contacts to be initiated between companies, creating added value for all concerned.

Franke: Each region has its own focal areas in its development strategy. BioRegio STERN with its biotech & medtech network of skills links biotechnology and medical technology companies in the region in a way that is unique in Germany and which has for years been exploiting the synergies resulting from the partnership between different sectors. As project partners, we can contribute this experience and also use it to help establish the Saxon organisational structure for medical technology. The cross-cluster project also gives us important insight into the needs of biotechnology and medical technology, which influences further developments in the regions.



Contact

www.biosaxony.com

biosaxony e.V.

The Saxon biotechnology cluster is made up of biosaxony e.V. and biosaxony Management GmbH. biosaxony e.V. is the biotechnology network serving the whole of Saxony. Its members represent the various companies, academic institutions, and stakeholders of the sector in Saxony. biosaxony Management GmbH represents the economic interests of SMEs.

Facts and figures

Areas of innovation: Biotechnology, medical technology, life sciences

State: Saxony (Germany)

Year established: 2009

Members: 114

Of which SMEs: 62



Contact

www.bioregio-stern.de

BioRegio STERN Management GmbH

The potential for collaboration between biotech, medtech and engineering companies is particularly high at BioRegio STERN: there are around 120 medtech companies compared to approx. 100 highly innovative biotech firms and more than 50 engineering companies interested in life sciences. BioRegion STERN came into being in 2001 during the BioProfile competition. The life science network helps companies located in the area to remain competitive both technologically and also internationally.

Facts and figures

Areas of innovation: Biotechnology, medical technology, diagnostics, engineering, automation

State: Baden-Württemberg (Germany)

Year established: 2001

Members: 323

Of which SMEs: 253

A first in Europe: Industry 4.0 knowledge base for SMEs



In future, best use is to be made of the intelligent application of cyber-physical systems.

The bwcon, microTEC Südwest and VDC networks have developed a cross-cluster range of services to consolidate the most important components of business migrating to Industry 4.0. The objective of the initiative is to set up an Industry 4.0 knowledge base and support network members in the Industry 4.0 age.

A holistic approach must be taken when assessing the challenges of Industry 4.0

Not all entrepreneurs are yet clear about what the term “Industry 4.0” means. To put it briefly, one could call it the fourth industrial revolution or the fourth level of production technology. The three preceding stages were 1.) mechanisation through water power and steam power, 2.) mass production and the division of labour with the help of electricity and 3.) further automation through the use of information technologies. The current stage 4.) is the

intelligent networking of technical systems (cyber-physical systems) in which the physical and virtual worlds merge. An example of this is the virtual commissioning of machinery which can be tested digitally before starting mass production to see which real errors the machine will still make.

Several partial aspects of the challenges of Industry 4.0 are already being dealt with in various networks. Examples include product development using cyber-physical production systems, security issues, market-oriented development of business segments, technological challenges associated with hardware and software or with primary innovation processes. What is missing, however, is the holistic approach. This is now being established and consolidated by the cross-cluster initiative. This measure offers the cluster actors of participating networks a broad knowledge base about all aspects of the vast subject of Industry 4.0.

A support platform is being set up along the value chain for both providers and users that serves information, exchange and cooperation purposes between industry, research and development. This includes ensuring that research and development results flow into small and medium-sized enterprises which may then use the former to shape their strategy and work processes. To achieve this, the three clusters pool their competences in ICT infrastructure (bwcon), microsystems technology (microTEC Südwest) and simulation and visualisation technology (VDC). This combination is as yet unique in Europe.

Specifically, this means bringing together the areas of ubiquitous computing, ICT infrastructure and smart systems, which, in future, will extensively penetrate companies' business processes. Previously, they were difficult to consolidate because this required very different product development processes to be coordinated with each other. The purpose of the initiative is greater permeability of all aspects of the production process, more efficient, flexible and adaptive process control, and greater integration of processes that accompany production so as to get closer to the objective of individualised production under the conditions of mass production.

Structures are intended to help users understand Industry 4.0 and use it correctly

The three connected clusters offer services at various levels. Practical examples concerning introduction strategies for the relevant technologies were discussed in a series of events with cluster actors, experts and other academics, and made available to all cluster members. After this, recommendations for action were derived from the practical examples. During the subsequent Open Innovation Workshops, 35 cluster actors then processed some actual cross-sector problems encountered during production. As soon as new innovation processes and corresponding projects get going, the three clusters support their members by means of coaching and advice about development funds.

Future collaboration with further sectors is vital

The vast subject of Industry 4.0 will continue to play a major role. The three clusters will each ensure that their expertise is kept up-to-date and will check how the merging of the real and the virtual world can be transferred to other



Project title:

Cross-cluster Industry 4.0

Brief description:

An Industry 4.0 knowledge base is being established in the project, giving members of the three networks involved – and in particular SMEs – a better understanding of Industry 4.0 as well as help with its application.

Clusters involved:

- Baden-Württemberg: Connected e.V. (coordinator)
- Leading edge cluster and professional association microTEC Südwest (partner)
- VDC virtual reality and cooperative engineering centre (partner)

Industries:

Microsystems technology, ITC, engineering

www.x-cluster-i40.de

sectors. Future collaboration with actors from the areas of health, mobility and energy management is virtually imperative here. Preparations have been made to facilitate further services which explore options for network projects and develop new business ideas in order to create sustainable structures and bolster the cross-cluster approach here.



Dr. Christian Förster



Nils Woldenga

Interview with Dr. Christian Förster (bwcon), Nils Woldenga (microTEC Südwest), and Dr. Christoph Runde (VDC)

How did the cooperation between the three clusters come about?

We have known each other here in Baden-Württemberg for many years and there is mutual trust between the clusters. The joint project came about simply as a result of the constant dialogue between us. We knew that IT experts could not manage the move to Industry 4.0 by themselves and neither could mechanical engineers. This is why we wanted to combine forces!

What methods are used to promote the dialogue between the entrepreneurs from the three sectors?

We use a healthy mix of tried and tested methods and our own experiments. Which means: we also have classic lecture events – these definitely have their eligibility. Here it is important not merely to reproduce old PowerPoint slides or present new versions of general difficulties, but rather to focus on a partial aspect of a subject with stakeholders in a practical way. We also conduct innovation workshops, however, where we call on international start-ups, established mid-sized businesses, and representatives of corporate groups using very interactive formats. We are guided by the methods of design thinking when planning such events. The workshop rooms are full of post-its, flip charts, and written presentation cards. We leave the projector off all day.

What subjects do you deal with during your events?

The subjects dealt with at our workshops are very open – participants bring their chosen subjects with them and the decision about which themes we actually work on is

reached democratically. When we arrange lectures and organise small conferences, as was the case for the official cross-cluster kick-off for example, we believe it is very important to select finely tuned, specific topics with a technical or business management focus. Probably no one today needs what feels like the thousandth event with the title “Industry 4.0 - opportunities and risks for the medium-sized business sector”.

Which instruments do you deploy to publicise project results effectively?

To be honest, we focus on a really specific group of experts that we keep informed regularly during personal meetings and at events. It is true that we published a press release on the official start of our project because that is part of the expected documentation. But understandably the wider public has little interest in questions such as the virtual commissioning of special purpose machinery – even if there is hidden value creation potential for the economy of Baden-Württemberg.

What role will knowledge management play in your service?

Naturally we have our own store of knowledge in the cluster management, such as member or rather customer databases. But much more important is advising our members during their projects as well as providing innovative knowledge management methods also beyond the limits of a specific industry, particularly when this concerns interdisciplinary projects. We therefore work with the story mapping method, for example. This involves a planning tool that translates customer requirements into project work packages, increasing transparency especially where there are more complex forms of collaboration. As a result, everyone keeps their sights set on the goal and works towards the same mission.

Have sustainable structures for this large network been established and consolidated?

Our Code of Conduct sets out the agreed objectives and rules governing our collaboration. The very first point focuses on joint work on a project basis. We are considering establishing our own operating company for the cross-cluster in the long-term, however. The rule here is that form follows function; in other words, formal procedures should not be hurried. Last but not least, the networking of our members that we pursue actively will guarantee the sustainability of the network.



Contact

www.bwcon.de

bwcon Baden-Württemberg: Connected e.V.

The bwcon cluster is a leading business initiative to promote the innovation and high tech location of Baden-Württemberg. As one of the most successful information and communication technology networks in Europe, bwcon now connects some 600 (mostly small and medium-sized) companies and research facilities.

Facts and figures

Areas of innovation: Information and communication technologies

State: Baden-Württemberg (Germany)

Year established: 1997

Members: 600

Of which SMEs: 450



Contact

www.microtec-suedwest.de

Leading edge cluster and professional association microTEC Südwest

The microTEC Südwest e.V. professional association represents the interests of industry, research facilities, and universities in the area of microsystems technology and adjacent fields in Baden-Württemberg. The state has commissioned the association to manage the MicroTEC Südwest cluster initiative, which is one of the winners of the BMBF Leading Edge Cluster Competition.

Facts and figures

Areas of innovation: Microsystems technology, smart production, smart health, smart energy, smart mobility

State: Baden-Württemberg (Germany)

Year established: 2005

Members: 112

Of which SMEs: 50



Contact

www.vdc-fellbach.de

Virtual Dimension Center (VDC)

The Virtual Dimension Center is the first port of call in Germany when it comes to the subject of virtual engineering. Subjects such as 3D simulation, 3D visualisation, product lifecycle management, and virtual reality are developed in joint working groups and placed at the disposal of all network members.

Facts and figures

Areas of innovation: Information and communication technologies

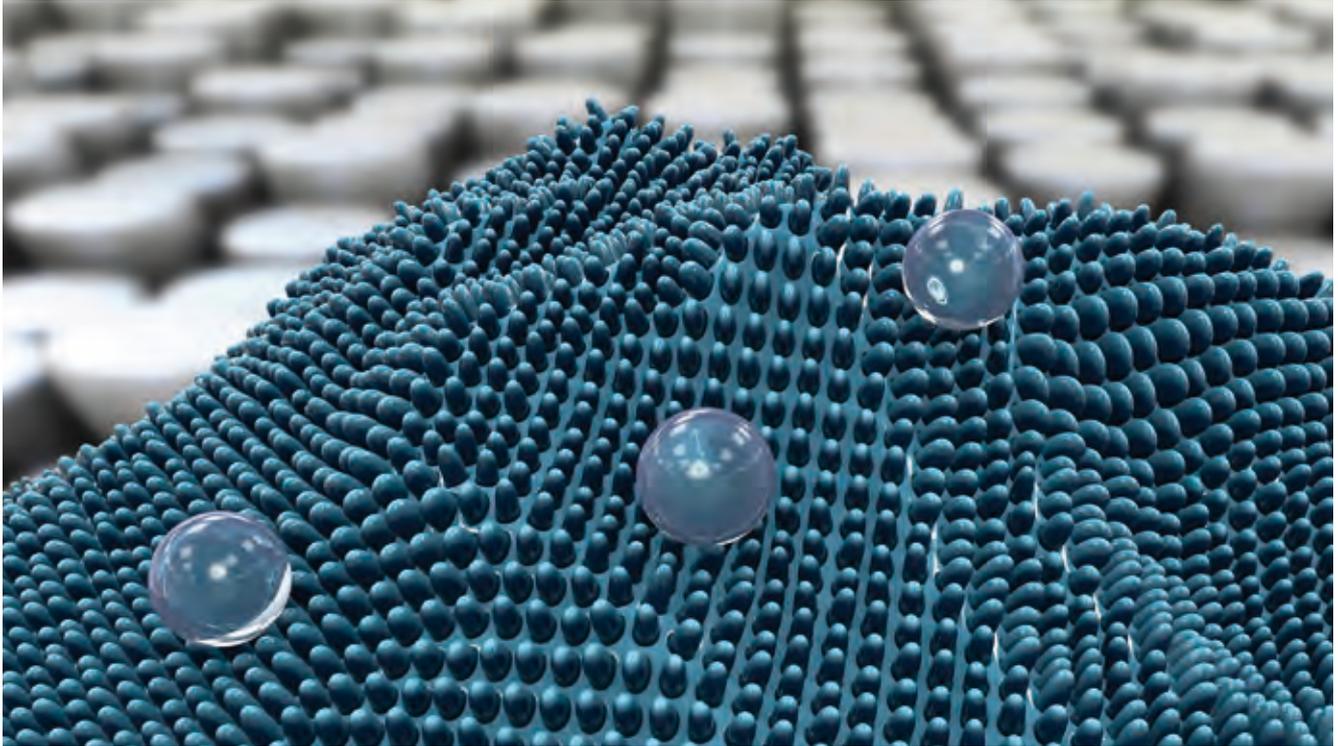
State: Baden-Württemberg (Germany)

Year established: 2002

Members: 81

Of which SMEs: 35

Communication strategies for SMEs in biotechnology and nanotechnology



The lotus effect seen in nature serves as the model for development of nano-coated surfaces.

Many novelties that originate from biotechnology and nanotechnology are met by social reservations because their development and application are frequently not easy to understand. Transparent and objective consumer information helps to reduce uncertainty. This, however, requires complex novelties to be communicated in a comprehensible manner. With their cross-cluster “HighTechComm – Kommunikation komplexer und risikobehafteter Technologien” project, the nanotechnology cluster and Munich Biotech m4 cluster aim to increase public interest in and the acceptance of new technologies by enabling cluster actors to communicate their new developments to the outside world in an understandable and positive way.

Key technologies with risks and side effects

Nanotechnology and biotechnology are of crucial importance to Germany as a business location. 950 nanotechnology companies and 570 biotechnology companies together with the relevant research facilities ensure high value creation. The technologies themselves are interdisciplinary. They combine medicine, physics, chemistry, food sciences, and other engineering sciences. Future oriented research

projects, such as researching the dosing of medications using nanotechnology or developing nano-coated surfaces that repel bacteria and germs, offer great hope and raise expectations with respect to these areas of innovation.

Nevertheless, social attitudes to new technologies are closely linked to their fields of application. If, for example, biotechnology is associated with life-saving or life-improving measures (medical biotechnology), then it is generally accepted. By contrast, plant breeding using genetic processes (green biotechnology) continues to be less accepted because of its contested influence on the environment as a whole. A coordinated communication strategy on the part of companies from biotechnology and nanotechnology is vital to increase society's acceptance of both sectors.

Cluster management enables SMEs to achieve better communication regarding biotechnology and nanotechnology

A good communication strategy helps to present biotechnology and nanotechnology products in a matter-of-fact way, allowing consumers to appraise them objectively.

SMEs in the industry in particular lack the resources to set up and implement this kind of communication strategy. Hence, the cross-cluster services offered help to professionalise their technology communication so that they can present their products and production procedures to the outside world in an easy to understand way. This facilitates consumer access to the product and reduces unfounded concerns and can ultimately lead to an improved market position.

SME actors from both clusters are given help and training on implementing this measure by their cluster management. One important instrument, for example, is stocktaking and creating a communication profile. A brief dossier is prepared during a two-hour visit based on the company history, the most important target groups, previous media activity, and the content to be communicated, and this dossier may indicate any specific individual points where action needs to be taken. This allows the entrepreneurs to deal with the high degree of explanation needed for their technologies and products using attractive communication measures aimed at specific target groups (for example comprehensible films such as “Immune therapy and T-cells” by Medigene (see: <https://vimeo.com/123005836>). The concept behind this cluster service was devised in 2015 within a cross-cluster project.

A joint strategy and customised individual support for actors

A joint, comprehensive communication strategy was developed on the basis of the experience of both clusters. The first exercise was to look at all cluster activities and actors and identify technological and economic points of reference. Cluster managements were then given communication skills training by means of external coaching and mutual exchange. SMEs from the two clusters were then selected in a model approach and subsequently given intensive support. Specific, needs-based, and customised methods for the communication strategy of each of the supported companies were then developed. All other actors were and continue to be informed about this model campaign and are then able to obtain support through the “Strategic technology communication for SMEs” service now firmly embedded in the cluster management portfolio. A companion product in the form of a novel toolbox for different communication paths has been created. Important elements are firstly a thorough “status survey” (knowledge

Project title:

HighTechComm

Brief description:

The management of the clusters support their actors in the status survey of their own communication ability and the formation of appropriate communication and marketing strategies to manage complex and risky nanotechnologies and biotechnologies.

Clusters involved:

- Cluster Nanotechnologie (coordinator)
- Munich Biotech (partner)

Industries:

Biotechnology, nanotechnology

about communication levels, target group distribution, diverse media uses etc.), plus a tiered structure with the most important communication elements specifically needed by the company.

Cluster management as knowledge transfer point

This project illustrates how important cluster management is at the interface between research/industry and the general public. On the one hand, it enables SMEs to tackle the subject of technology and risk communication professionally at an early stage, while simultaneously connecting the various cluster actors and simplifying public access to high technology fully in line with the “Public Understanding of Science”.



Dr. Daniel Kluge



Dr. Georg Käab

Interview with Dr. Daniel Kluge (Cluster Nanotechnologie) and Dr. Georg Käab (Munich Biotech)

How did you approach each other with the idea of working together on the subject of technology communication?

Käab: First it was important to get to know each other and compare the good and bad examples of communication from the respective sectors. Although we are both based in Bavaria, there had not yet been any real interaction between our clusters.

Kluge: The next step involved checking our own communication skills during an expert workshop. On the one hand, we were very pleased that this positively confirmed our previous working practices. On the other hand, it further sharpened our understanding of the communication issue to enable us to give companies even more targeted support.

How was the service received by the pilot SMEs?

Käab: We encountered considerable interest but also very diverse requirements. Whilst we are unable to do the work of a communication agency (something that there was definitely a demand for), the simple and concrete handling of the subject was of assistance to the companies. We are continuing to build on this.

Kluge: The situation was very similar with us. Especially in SMEs there is little time for strategic technology communication in everyday business. Even the time spent on this during our meetings produced several new ideas and very positive feedback.

In which and in how many SMEs have successful communication strategies already been implemented?

Kluge: We consciously chose two very different SMEs in our cluster: one company whose core business for many

years has been the production and processing of nanomaterials and one company that has only been dealing with the subject for a short time. In the process we learnt a great deal, although the problems are very individual. For this reason we have initially concentrated on “depth” rather than “breadth”, and are only now preparing to open the service up to other companies.

Käab: We are still at the start of expanding the service and we are primarily considering a “best practice workshop” where experiences can be further exchanged and where we in particular want to initiate a knowledge transfer from established companies.

Do you plan to expand the service to other communication channels? In which form?

Käab: The social media channels are an obvious choice but this is something that we will probably only be able to address in the near future with professional help and as resources allow, also on the part of the companies.

Kluge: Social media in particular needs constant updating by the company, which ties up personnel resources that frequently are not or not yet available in the required form.

Is a transfer of this service to other sectors or clusters conceivable?

Kluge: Definitely in terms of the basic approaches. Simply raising the awareness of strategic technology communication is an important step for all SMEs working in high tech fields.

Käab: As I said, we have not and will not develop any complete agency type communication strategies. There should not be any misunderstanding about this. Our approach is to support the smaller companies who have not even formulated structured thoughts about communication, because they have not previously had time to do so. Sectors, and in particular cluster organisations that support companies of this kind, will certainly be able to achieve something with the structured methods developed here.

**Contact**

www.nanoinitiative-bayern.de

Cluster Nanotechnologie

Cluster Nanotechnologie offers an extensive network service for the nanotechnology sector. It is funded on a diminishing scale by the Bavarian state government within the Bavarian Cluster Initiative. The most important objectives of the cluster are technology transfer and networking between universities, institutes, and companies, especially SMEs.

Facts and figures

Areas of innovation: Nanotechnology

State: Bavaria (Germany)

Year established: 2007

Members: 142

Of which SMEs: 74

**Contact**

www.bio-m.org

Munich Biotech

Bio^M has specialised in the Munich Biotech Cluster in networking services for research facilities and companies in the area of medical applications for diagnostics and therapy. Here, SMEs and especially young spin-off companies from LMU and TUM universities and from non-university research institutes are supported and linked up with investors and companies.

Facts and figures

Areas of innovation: Biotechnology

State: Bavaria (Germany)

Year established: 1997

Members: Approx. 260 (no association structure)

Of which SMEs: 120

Chemical and aviation industry on a common path



The combination of the chemical and aviation industries provides high innovation potential.

Chemical products offer diverse applications in aerospace. Antimicrobial surfaces for the insides of aircraft, new processes for chrome-free corrosion protection, possible designs for future cabins as well as electrode materials for the next generation of batteries are currently on the wish list of the aviation industry. With its knowledge of materials and processes, the chemicals industry is able to offer numerous answers to current industrial questions: in the aviation industry in particular, many of the urgent technological requirements can be met by system integrators using chemical solutions.

The “distance” between chemical suppliers and industrial OEM (Original Equipment Manufacturers), the lack of transparency in value chains as well as regulatory hurdles prevent an efficient cooperation between the chemicals and aviation industries during development and production. As both industries have very different histories, it makes sense for actors from the two sides to consolidate appropriately in order to make best use of the high innovation potential offered by the interfaces. Aviation Cluster Hamburg and Chemie-Cluster Bayern are committed to just such a merger between aviation and the chemicals industry.

Access to new partners and new knowledge – benefits for both parties

In the “Bridge between chemicals and aviation” cross-cluster project, the two clusters have developed a service that helps members of both networks to find their way around new technologies in the aviation and chemicals industries and to apply these.

This cooperation gives both clusters a much larger network with the most diverse starting points for developing new products. Chemie-Cluster Bayern offers this partnership access to over 30 cooperation networks with international chemical clusters and industrial associations. Cluster Hamburg Aviation opens the door to the European Aerospace Clusters Partnership, the EACP, which is coordinated by Hamburg Aviation, for the partnership.

With this measure, the two clusters create several new application options which would otherwise remain undiscovered. These types of cross-sector partnerships enable technological innovations to be developed in one sector and then applied in another. This potential would not be apparent without this particular kind of “thinking outside the box”. This is why an initiative that works within a close, trusting partnership to identify specific industrial needs

and to place R&D results in interdisciplinary networks is essential for the creation of innovative products and solutions in the chemicals and aviation sectors.

The “Chemicals value creation partnership” and “New flying” are the foundation stones of this project

The background to this initiative is firstly the “Chemicals value creation partnership” of Chemie-Cluster Bayern and secondly the “New flying” strategy of the Hamburg Aviation Cluster.

The “Chemicals value creation partnership” is an approach aimed at quickly identifying current needs of users outside the chemicals industry. In the “Chemicals value creation partnership – solving today’s problems”, chemicals companies and universities offer their services as innovation partners to industrial companies from other sectors. Through joint discussions about current issues, cluster members act as service providers for industrial user segments, in particular for those not yet closely integrated in chemicals value creation chains.

In aviation, innovations are often slowed down by specific obstacles in the industry. These include strong bureaucratic certification processes and confusing legal framework conditions, as well as frequently extremely complex value chains with a long-term orientation. The actors in Hamburg Aviation developed the “New flying” strategy to support optimisations in aircraft construction, achieve improved efficiency in air transport systems, and make flying generally more economical, environmentally friendly, convenient, flexible, and reliable.

The objective of both clusters is to develop a comprehensive cooperation agenda that establishes cooperation topics and modes to integrate further cluster and cooperation partners, thereby creating an environment that encourages innovation.

Communication between the two clusters as the key to success – also adding further clusters in future

The cluster actors from both sectors got to know each other via various channels within this project: suitable core

Project title:

A bridge between chemicals and aviation

Brief description:

The cooperation project makes it easier for actors from the chemicals and aviation sectors to access new technologies and users from the other sector, underpinned by the joint preparation of an interdisciplinary strategy for collaboration.

Clusters involved:

- Chemie-Cluster Bayern (coordinator)
- Hamburg Aviation (partner)

Industries:

Aviation, chemicals

subjects and the associated actors were firstly identified and brought together for potential development concepts. Additionally, the initiative was introduced at the annual meeting of all 34 members of the EACP (European Aerospace Cluster Partnership). The next step will determine the extent to which it might be possible to transfer this cross-clustering initiative to other European aviation clusters. Secondly, the problem of certification/qualification specific to the aviation industry was examined by experts from Lufthansa Technik and Rolls-Royce during a workshop for the more than 20 participants from the chemicals industry. The 28 participants got to know each other through face-to-face talks and a moderated working environment.

With the workshop, both clusters have launched a joint range of technology transfer workshops. A targeted matchmaking of technology needs of the aviation companies in the areas of chemical product and process innovations has resulted in cooperation profiles, industry files, and working groups which form the basis for the collaboration with other clusters from different sectors, e.g. ship-building and the construction industry.



Irina Nunberger



Dr. Christian Scherhag

Interview with Irina Nunberger (Chemie-Cluster Bayern) and Dr. Christian Scherhag (Hamburg Aviation)

How did the cooperation partners become aware of each other?

Nunberger: The contacts established up to then by Chemie-Cluster Bayern to companies from the aviation sector can be attributed to bilateral contact approaches. The collaboration with established networks and clusters represents an efficient way to initiate partnerships; this is true both of establishing contact to aviation companies and to mediating knowledge specific to the industry. This is why we asked Cluster Hamburg Aviation in 2014 about cross-sectoral collaboration. It quickly became clear in initial meetings that cooperation can offer several advantages to both networks – a wise step that our members already owe a great deal to.

How is the collaboration between the clusters regulated?

Scherhag: At the start of the project, we devised a joint strategy and thus a good basis for long-term cooperation. In particular, we paid attention to planning the steps following the expiry of project support. The coordination of the initiative beyond the “go-cluster” project term will be undertaken by the “Chemicals meets aviation” working group based in the chemicals cluster. We regulated operational collaboration in the project in a cooperation agreement concluded for the duration of the project.

How has the project been received by cluster members?

Nunberger: There has been very high acceptance of the project on the part of members of the Chemie-Cluster Bayern. This is reflected already by the high number of cooperation profiles submitted, the permanent establishing

of the ChemAviationBrücke (chemicals aviation bridge) working group, as well as by the above average number of active participants not only in project activities themselves, but also in their preparation.

Scherhag: After a few meetings we were able to interest a number of member companies in the initiative. Certification represents a difficult hurdle on the path into the aviation supply chain. Our member companies are willing to support new suppliers from the chemicals industry along this path. Our member companies themselves emphasise that, owing to changed environmental standards, innovative chemical products and processes could become increasingly important to aviation in future.

How was it possible to integrate the preliminary work of the “Value creation partnership of the Chemie-Cluster Bayern” and the “New flying” strategy into the cross-cluster processes?

Nunberger: Since 2009, Chemie-Cluster Bayern has been asking industrial companies who do not yet have any direct connection to the chemicals industry about their material and process requirements. However, this process has only had a precise industry focus since 2013 through the “Chemicals value creation partnership”. The cross-sectoral cooperation initiation methods developed in the “value creation partnership”, together with its industry files containing relevant product information and the skills of our members, were available for use by this partnership.

Scherhag: The “New flying” strategy shows to us as a cluster future areas of activity and defines the strategic direction. During the strategy process in 2014, a decision was taken with our members in favour of stronger networking with other sectors. The information about the needs of our members obtained as a result ultimately led to a targeted approach to the “ChemAviationBrücke” project that was relevant to the Hamburg cluster actors.



Contact

www.chemiecluster-bayern.de

Chemie-Cluster Bayern

Chemie-Cluster Bayern is a market-oriented project development network of companies and research facilities in the Bavarian chemicals sector and their cooperation partners.

Joint research and development projects are conducted in the network of more than 270 companies and research facilities. The close collaboration with the Bavarian chemicals associations helps ensure productive networking within the Bavarian chemicals industry.

Facts and figures

Areas of innovation: Chemicals and associated sectors

State: Bavaria (Germany)

Year established: 2006

Members: 270

Of which SMEs: 110



Contact

www.hamburg-aviation.de

Hamburg Aviation

Hamburg Aviation is the aviation cluster of the Hamburg metropolitan region. In total, more than 40,000 highly qualified professionals work here (Airbus, Lufthansa Technik, Hamburg Airport, small and medium-sized enterprises and diverse technological/scientific institutions).

The cluster actors with their expertise cover the entire life cycle of an aircraft: from development, manufacture and assembly, to the air transport systems, the servicing, repair and overhaul, and through to recycling. This makes Hamburg the third largest location in the world for the civil aviation industry.

Facts and figures

Areas of innovation: Aviation

State: Hamburg (Germany)

Year established: 2001

Members: 124

Of which SMEs: 66

CLOU5 – multifunctional communication and cooperation platform



The platform for cluster actors permits efficient, cross-cluster and individual collaboration.

Cluster managers generally use a large number of web-based instruments during their everyday work, such as Dropbox or Google Drive to send and receive documents, Trello for task management, Skype for video conferencing or Xing to find experts. These tools contain functions that are indispensable for cross-cluster collaboration.

CLOU5 (Cross CLuster Open innovation groUps) has created a platform that unites all of these instruments in the environment of trust of the clusters concerned. Cluster managers and cluster members can use this multifunctional communication and cooperation platform for cross-cluster cooperation irrespective of their individual hardware and software constellations. CLOU5 offers space for cluster managers and their members to develop cross-sector innovations and simultaneously cluster management instruments to realise common projects. The target group for the platform are clusters as well as industry and technology networks with professional cluster management.

A one stop shop: the platform as simple and multifunctional communication and cooperation instrument

Some time ago, the three founding clusters (BalticNet-PlasmaTec e.V., Food-Processing Initiative e.V., InnoZent OWL) had an idea for a platform uniting different skills, industries, and fields of technology. With CLOU5, the cluster management can develop its cluster sustainably and make implicit knowledge visible to and usable for members. This means that the cluster management organisations and their cluster members are able to use the knowledge of all clusters involved without the need for elaborate meetings or research. As a result, capacities otherwise required for cross-sector and cross-cluster activities are significantly reduced. The clusters involved therefore expand their “absorptive capacity” several times over. All activities are moreover created in the environment of trust between the clusters involved. Furthermore, users are able to decide individually whether information should be visible merely to a group, to the selected network, the entire platform, or publicly on the internet.

CLOU5 offers the following modules:

- Closed and secure groups for partnerships and communication
- Technology offers and enquiries from and for experts
- Conference system (voice and video conference)
- Exchanging files, documents, videos, etc.
- Personalised dashboard
- Publication database
- Project management tools (surveys, invitations, project planning, etc.)
- Moderated, virtual in-house workshops and seminars
- Use of a shared pool of knowledge (study area)
- Resource-saving exchange in a secure environment (minimisation of travel time and costs)

Advantages for cluster managers

It is easier for cluster managers to manage the initiation and application of partnerships between members of other registered clusters. At the same time, they can support and promote communication and cooperation between their own members. The cooperation with other clusters and other cluster managers, e.g. in cross-cluster projects, is also easier and the initiation of partnerships can be realised quicker. This facilitates efficient, cross-cluster work tailored to the individual needs of cluster actors, e.g. by searching for specific technologies or experts. Open or closed groups can be set up for particular concerns and specific exchanges with partners and experts.

Cluster managers can offer their members a protected, secure area in which to exchange confidential information, e.g. within support projects or innovation meetings. This makes it possible to use different communication and cooperation instruments in a manner compliant with data protection on just a single platform.

Advantages for cluster members

Cluster members receive efficient access to the knowledge/expertise of all participating clusters and their members. A communication platform has been established that enables actors not only to communicate with their own cluster partners but also across clusters with other experts, completely independent of their own systems.

Project title:
CLOU5



Brief description:

The project established an online platform for cluster and cross-cluster partnerships

Clusters involved:

- InnoZent OWL e.V. (coordinator)
- BalticNet-PlasmaTec e.V. (partner)
- Food-Processing Initiative e.V. (partner)

Industries:

Plasma technology, food industry, food processing, packaging industry, ICT

www.clou5.net

The platform offers all cluster members a protected, secure area for confidential exchange that goes beyond company and research facility limits. CLOU5 therefore also expands trust amongst the clusters and actors. Communication via the platform saves the cluster members resources because confidential negotiations no longer need to be held in situ. This saves travel time and costs. Additionally, virtual in-house seminars using a video conferencing tool can be organised in closed or open groups and conducted directly on the platform.

A platform with no limits to growth

Behind CLOU5 is a business model that promotes the inclusion of new clusters and therefore expands cross-cluster cooperation. The cluster managers continue to be the first point of contact for their members on the platform. With CLOU5, the focus is on clusters and their members. The possible expansion of the platform can be contemplated once an appropriate number of enquiries has been received, e.g. by integrating further modules and tools.



Michael Kemkes



Katherina Ulrich



Sabine Höfel

Interview with Michael Kemkes (InnoZent OWL e. V.), Katherina Ulrich (BNPT), and Sabine Höfel (Food-Processing Initiative e. V.)

When and how did you know that a common platform would be worthwhile for your network members?

The demand has grown constantly in recent years due to the increase in cross-cluster partnerships. None of us would have started to develop this platform as a sole cluster, however, so that the support offered by “go-cluster” presented an opportunity to us all.

How have cluster members reacted to the platform so far?

We asked our members what expectations they would have of this kind of platform in advance of its development. Despite the different priorities set in terms of demands, the reaction was positive throughout.

What does the number 5 in the name CLOU5 stand for?

The platform is based on five pillars: (1) expert profiles, (2) closed spaces, (3) technology offers, (4) technology requests,

and (5) the learning platform. These five functions form the basic framework for a targeted, cross-cluster partnership. They give actors an environment of trust, which is an important foundation for successful innovation projects.

How is the collaboration between the clusters regulated? Are there written agreements?

There is a cooperation agreement between the three founding members for as long as we are formally operating as a non-trading partnership (GbR). A company to operate the platform is to be founded in 2016. An agreement containing the relevant conditions of use will be concluded with other clusters.

Which cross-sector projects have commenced since then?

As the platform only began in January 2016 with a three-month trial phase, no projects have yet been started. However, a number of ideas exist regarding discussions and the initiation of partnerships to be launched via the platform.

What would your advice be to other clusters planning partnerships with international partners?

On the one hand, our platform would be a suitable tool for establishing new international contacts, intensifying contact initiation, and maintaining a constant exchange with international partners. On the other hand, we need to ask: “Do my cluster members want to operate internationally?” Subsequently, target markets and target sectors are identified in order to then search for local clusters or contacts and make initial contact. The CLOU5 platform enables members to search for potential international partners in an environment of trust and write to them directly using the platform. This makes it considerably easier to initiate the first contact.



Contact

www.innozentowl.de

InnoZent OWL e.V.

For many years, the InnoZent OWL e.V. cluster has been successfully initiating national cooperative and cross-sector innovation projects between companies and research facilities, with a specialist focus on the innovative use of information and communication technologies.

Facts and figures

Areas of innovation: Information and communication technologies

State: North Rhine-Westphalia (Germany)

Year established: 1998

Members: 68

Of which SMEs: 41



Contact

www.bnpt.eu

BalticNet-PlasmaTec e.V.

BalticNet-PlasmaTec e.V. (BNPT) is an international cluster based in the north-east of Germany (Greifswald) and stands for a technology and market oriented collaboration between science, research, and business in the plasma technology sector.

Facts and figures

Areas of innovation: Plasma technology

State: Mecklenburg-Vorpommern (Germany)

Year established: 2006

Members: 71

Of which SMEs: 31



Contact

www.foodprocessing.de

Food-Processing Initiative e.V.

The principal objective of the cluster is to strengthen the competitiveness of companies in the food supply chain. The network provides support in finding out about funding opportunities, technology transfer from research and development, and the internationalisation of its members through its collaboration with European networks and contacts to partners and markets.

Facts and figures

Areas of innovation: Food technologies

State: North Rhine-Westphalia (Germany)

Year established: 1996

Members: 128

Of which SMEs: 80

Smart networks – photonic microsensors on the rise



High resolution photonic microsensors work in the same way as the human eye.

In the age of digitalisation, modularisation, and networking, photonic microsensor technology is beginning to play a key role. The reason for this is the growing availability of high resolution photonic microsensors that cannot just operate in the visible range in the same way as the human eye, but also in the non-visible ranges of ultraviolet and near- and far-infrared wavelengths. The long established silicon technology needs to be supplemented by semiconductor heterostructures, however. It is well known that people take in around 80 percent of information using their eyes and process those using their brain. While the photonic microsensors simulate the functions of the eye with this technology, microcomputers and digital image processing assume the functions of the brain. A special feature here is that high performance microcomputers, as they are now found in mass-produced consumer goods in the form of smartphones and smart tablets, are convenient, reliable, and affordable.

Small technology – big teamwork

2015 was proclaimed the International Year of Light (IYL2015) by UNESCO. This highlighted innovative developments in photonics in the areas of education, science, and culture. The Sensorik Bayern innovation cluster (supported by the Strategische Partnerschaft Sensorik e.V.) with headquarters in Regensburg and SpectroNet (supported by Technologie-und Innovationspark Jena GmbH) have reacted to these challenges in joint projects, including their successful work on the following areas with their cross-cluster cooperation “Sensorik 2.0” (sensors 2.0):

- Mobile microcolorimeter and microspectrometer sensor modules;
- Smart photonic sensors 2.0 for industrial measurement technology in digital transformation;
- Photonic design, colour, and spectral microsensor modules and digital image processing on tablets for biotechnological applications;

- More user-friendly photonic microsensors and digital image processing due to the consumerisation of micro-processor technology;
- Optical characterisation of materials using microsensors and microcomputers;
- Photonic microsensors for the characterisation of liquids in laboratories and in the field;
- Digital transformation of education programmes and advanced training in photonic sensors and digital image processing using smart microcomputers;
- International cluster collaboration in photonic technologies for the 2020 digital society.

The results of this work have been presented nationally and internationally and demonstrated at a wide range of events. For example, these include the “Electronic Imaging/Photonics West 2015” conference in San Francisco (USA) and the “SIAF 2015/SPS Industrial Automation Fair” in Guangzhou (China). The project also presented itself at events in Munich (BioSensor Symposium), Karlsruhe (Optical Characterisation of Materials), Nuremberg (Messtechnik-Messe Sensor+Test 2015), and Jena (SpectroNet Cross-Clustering Collaboration Forum). An international exchange of project results took place at a meeting with cluster institutions during a visit to the Academic University for Management and Economics in St. Petersburg (Russia) and the delegation visit to Sofia and Plovdiv (Bulgaria).

In addition to numerous small and medium-sized companies and research facilities of the Fraunhofer Society, large companies such as Zeiss, Siemens, and Osram have also taken part in the long-term joint projects. Details can be found using the search functions on the open cluster platforms www.sensorik-bayern.de and www.spectronet.de. The detailed image and audio information ranges from research and development, production and application services, advertising and sales, to education and advanced training programmes with digitally networked innovative services for cluster partners and customers.

Assured quality – digitalised education and advanced training programmes

In addition to research and development, the Bavarian sensor cluster and the international SpectroNet collaboration cluster also focused on education and advanced training programmes for students and professionals. This included the special course prepared jointly by the two clusters on

Project title:

Sensorik 2.0

Brief description:

With the “Sensorik 2.0” project, the two clusters provided digital platforms and services for intelligent and relevant networking of experts in the field of photonic measurement technology and quality assurance.

Clusters involved:

- SpectroNet (coordinator)
- Strategische Partnerschaft Sensorik e.V. (partner)

Industries:

Electrical engineering, photonics, microsensors, measurement technology, quality assurance

“funding and investment” for innovations as part of the “business management for developers” series of seminars in the training programme of Strategische Partnerschaft Sensorik and the model lecture “Optical coordinate measurement technology” for master students in the SciTec department of the Ernst-Abbe University of Applied Sciences in Jena. The special course was centred on the link between innovations and their funding opportunities under cross-company conditions and the link between customer wishes and cost orientation in development processes. Once the course had been completed, it was uploaded in the cloud in form of a video. The model lecture for the first time examined the geometric, colorimetric, and spectrometric optical coordinate measurement technology in a uniform way with regard to method and content while combining photonic measurement technology with industrial and non-industrial quality assurance. Here, too, the lecture was made available in the cloud upon completion of the course, thereby helping to raise public awareness of the project results.



Prof. Dr. Dietrich Hofmann



Paul-Gerald Dittrich



Dr. Nina Galushko



Dr. Hubert Steigerwald

Interview with Prof. Dr. Dietrich Hofmann, Paul-Gerald Dittrich (SpectroNet) and with Dr. Nina Galushko, Dr. Hubert Steigerwald (Strategische Partnerschaft Sensorik e. V.)

How is the collaboration between the two participating clusters regulated?

Steigerwald/Galushko: The collaboration in the “Sensorik 2.0” project was contractually agreed. The subject matter was and is the joint development and dissemination of new findings and preferred technological solutions for modern sensor technology.

How did you attract large companies to the project?

Hofmann/Dittrich: The major companies Zeiss, Siemens, and Osram have significant research, development, and production capacities within the scope of the project and are members of the innovation cluster. As a result of years of cooperation with recognised outcomes in the network-

king of SMEs and research institutions with this big industry, it has been possible to build mutual trust; this is what the cooperation in this project is also based on.

Can you cite any examples of concrete applications for the innovative developments within the joint projects?

Steigerwald/Galushko: Examples of concrete applications for innovative developments during our activities include achieving point-of-care diagnostics for hand-held skin tissue examinations, the realisation of near-infrared measurement procedures for the optical investigation into layer thicknesses, and the metrological monitoring of plant growth during field use.

Hofmann/Dittrich: The concept for photonic measurement technology and quality assurance devised during the project exploits the theoretically unlimited new application areas for measurement technology and quality assurance with uniform method and content. This refers to geometric, colorimetric, and spectrometric quality parameters in industry, biology/medicine, environmental protection/agriculture as well as administration and security.

How and in which proportions will the “Sensorik 2.0” platforms be maintained once the support period has expired?

Hofmann/Dittrich: The “Sensorik 2.0” platforms will be continued jointly by the sensor cluster in Bavaria on www.sensorik-bayern.de and by SpectroNet on www.spectronet.de.

Steigerwald/Galushko: “Sensorik 2.0” is characteristic of the innovative developments and applications covered by the groundbreaking fourth industrial revolution.

How will the planned accreditation of the teaching and learning tools take place?

Steigerwald/Galushko: We aim to have the teaching and learning tools accredited by the TÜV in Bavaria and Thuringia to encourage further recognition and use.



Contact

www.spectronet.de

SpectroNet

SpectroNet is a leading innovation cluster for photonic measurement technology, diagnostics, and quality assurance. The methodological and content-related focus lies on the miniaturised, modularised, and networked mobile geometric, colorimetric, and spectrometric measurement technology and digital image processing for industrial, biological, and medical applications. The purpose is supplementing smartphones and smart tablets with novel hardware apps and software apps.

Facts and figures

Areas of innovation: Electrical engineering, photonics, microsensors, measurement technology, quality assurance

State: Thuringia (Germany)

Year established: 2005

Members: 35

Of which SMEs: 14



Contact

www.sensorik-bayern.de

Strategische Partnerschaft Sensorik e.V.

Strategische Partnerschaft Sensorik e.V. is the body responsible for sensors in the Bavarian innovation cluster. Its hotspots include those in the Regensburg, Erlangen, Coburg, Passau, and Munich regions. Around 70 members and over 200 actors along the entire supply chain for modern sensor technology (developers, manufacturers, users, and service providers) demonstrate the large potential of the cluster.

Facts and figures

Areas of innovation: Electrical engineering, measurement technology, microsensors, photonics

State: Bavaria (Germany)

Year established: 2006

Members: 72

Of which SMEs: 24

Innovative industrial fittings – with innovation management to a patented product



New developments with the help of innovation management: metal sealing plug valve, 4-fold eccentric valve, actuator requiring no auxiliary power.

Increasing demands for plant safety, control accuracy, and reliability, together with requirements relating to environmental protection, are the driving forces behind product innovations in the area of industrial fittings. New materials and technologies open up new possibilities and demand an interdisciplinary approach to new technical solutions. It is easier for SMEs to face these challenges if they are able to incorporate external innovation management and external know-how in their operational functions.

With the “Innovative industrial fittings” project, an accompanying innovation management was developed for the participating cluster companies through cross-clustering between the Sondermaschinen- und Anlagenbau (SMAB) cluster for special purpose machinery and plant construction and Kompetenznetz Industrielle Plasma-Oberflächentechnik (INPLAS), which is a skills network dealing in industrial plasma surface engineering. The combination of skills and contacts enabled the transfer of knowledge in product development to be driven forward to the extent that it helps define the state of the art.

It all depends on the requirements - customised services for SMEs

The objective of the project was to make current research results, adapted for industrial fittings, adequately available to SMEs. Companies that previously had no access to

exports were included in marketing products overseas. The composition of experts required for each of the three product groups was planned during the kick-off meeting, and companies with international experience were deliberately included. All in all, ten selected member companies from the SMAB cluster were given support with their technical development and market launch.

The cluster management coordinated the communication between all partners participating in the project, devised a development roadmap, specifications and SWOT analyses for the technical product developments, coordinated a structured approach by the partners, carried out market research for the products being developed, and supported trade fair activities.

The cluster management organisations furthermore selected suitable funding instruments to reduce the development risk to companies so that the financing of development services could be better estimated in advance.

Conquering the market through use of external consultants

Professional support was provided for the area of marketing, most notably by using institutions such as Enterprise Europe Network (EEN) and the Foreign Trade Department of the Magdeburg Chamber of Industry and Commerce.

Part of the marketing strategy was to communicate the rules, regulations, and standards for domestic and overseas markets.

Three innovative product groups

The technical new developments supported by the innovation management concerned the “conical plug valve, metal sealed with INNO-MAR® drive”, “metal sealed INNO-ECC® valve”, and “quick-acting drive requiring no auxiliary power” for the chemicals industry.

A plug valve is a shut-off valve for use in refineries with contaminated abrasive media. When in open position, the fitting is characterised by very low pressure loss and low attrition. Opening the fitting requires the conical plug valve to be lifted, twisted, and lowered. The sealing surfaces must be armoured as protection against erosion. A patented solution defining the state of the art and which received the necessary certificates from operating companies was developed for the actuator mechanism.

The metal sealing valve involved a very short shut-off valve. Contrary to the state of the art, the body seat/valve pair was designed to make production simpler and to achieve a high and consistent contact pressure across the circumference of the seat.

Industrial property rights as prerequisite for a secure position on the market

The companies involved were supported in implementing industrial property rights for the products developed so as to protect these product developments for a defined period on the market. In addition, the experience of cluster companies was used during product certifications and approvals for industrial fittings.

Positive effects for all involved and plans for further development

Research facilities and engineering and production companies in the Magdeburg region as well as development, production, and sales partners in the eastern Lower Saxony region all benefited from the service concept. Right from the start, the project was designed for long-term techni-

Project title:

Innovative industrial fittings

Brief description:

With the “Innovative industrial fittings” project, the two clusters SMAB and INPLAS provided their expertise and services adapted to the cluster actors to support the development of new products in the area of industrial fittings.

Clusters involved:

- Sondermaschinen- und Anlagenbau Sachsen-Anhalt (SMAB) cluster (coordinator)
- Kompetenznetz Industrielle Plasma-Oberflächentechnik INPLAS e.V. (partner)

Industries:

Production technology, manufacture of valves and fittings, plasma surface engineering, materials engineering, joining and assembly

cal collaboration from development to production and marketing. The work of the joint innovation management will therefore be continued and extended with the previous companies and with other companies.

The positive effects were felt equally by cluster actors and cluster management. In this way, new experiences with international collaboration and working with a stronger interdisciplinary approach have had a profitable effect on services for the SMEs in the cluster.

The SMAB cluster is planning to use the experience gained in filing for industrial property rights and to expand work with the ESA patent utilisation agency for Saxony-Anhalt by accessing the pool of ideas from university inventions. The INPLAS skills network aspires to similar collaboration with the Lower Saxony Invention Centre and higher education establishments in the region.

The aim in the medium-term is also to transfer the project results to product developments in medical technology.



Dr. Michael Klaeger



Carola Brand

Interview with Dr. Michael Klaeger (Sondermaschinen- und Anlagenbau Sachsen-Anhalt Cluster) and Carola Brand (INPLAS e.V.)

How did the cooperation between the two participating clusters come about?

The cluster managers at INPLAS and SMAB met at a German Federal Ministry for Economic Affairs and Energy benchmark event in the spring of 2013. The cluster managers then arranged a meeting and analysed the existing potential and needs. The content offered excellent synergies for collaboration.

The plan was to obtain feedback from the companies concerned about the success of innovation management even during the course of the project so that necessary adjustments could be made to the ongoing project. Did this method prove to be worthwhile, and to what extent were adjustments actually made?

The employees of the SMAB cluster management have been supporting some of the companies since they were founded. A very close relationship of trust therefore already existed with some companies. The cooperation with INPLAS enabled completely new solutions to be identified and injected new impetus in product development. There is a medium-term common strategy, although this has to be consistently adapted in line with the changing needs of the companies involved owing to market requirements.

Adjustments concerned the inclusion of the companies to solve sub-tasks, decisions regarding the filing or subsequent filing of industrial property right applications in potential overseas markets, results of laboratory tests with respect to

the selection of what initially appeared to be suitable material combinations, and decisions about trade fair participation with a focus on plant engineering trade fairs.

Have cluster actors already seen any notable added monetary value from the developments? The cluster work was concentrated on three product groups. The added monetary value is different for each:

1. Metal sealing plug valve with novel actuator: After successful certification of the product with all major internationally active operators of refineries, the sales increased from zero to over € 500,000 in 2015. The new products are deployed in functional parts of equipment and now need to prove their operational reliability. The aim is also to offer nominal widths above 16 inches and to achieve sales of € 2.7 m. in two years. In the area of the actuator mechanism for conical plug valves, cooperation with other manufacturers is taking place with the aim of becoming the market leader. As a result of the market success as a start-up, one company has invested € 500,000 in new company premises and technical equipment and has created new jobs. Three production companies have adapted the technical aspects of their production. An engineering office is working with additional companies on extending the functions of the novel actuator mechanism. The cooperation partners' research costs, including product approval, amounted to approx. € 600,000.
2. Metal sealing valve: The new product has been approved for the North and Central American market. The first valves are in industrial use. Sales were approx. € 200,000. Further commercial success depends on the operating experiences in chemical plants in the USA and Mexico. The aim is for annual sales of € 450,000.
3. Actuator requiring no auxiliary power: The patented solution has been expanded to various overall lengths and is being sold to a company successfully. So far it has not been possible to increase sales by exporting overseas because sustained enquiries from Russia have fallen victim to economic policy decisions. Research costs amounted to approx. € 150,000. Sales in 2015 were approx. € 300,000.



Contact

www.cluster-smab.de

Sondermaschinen- und Anlagenbau Sachsen-Anhalt (SMAB) cluster

The central goal of the Sondermaschinen- und Anlagenbau (SMAB) cluster is to improve the competitiveness of companies in this sector by cooperating to reduce the disadvantages of the companies' small size. The work focuses on supporting companies in the development of special purpose machinery, linked system solutions, energy-efficient installations, efficient production technologies, and products for medical technology.

Facts and figures

Areas of innovation: Production technology

State: Saxony-Anhalt (Germany)

Year established: 2008

Members: 125

Of which SMEs: 112



Contact

www.inplas.de

Kompetenznetz Industrielle Plasma-Oberflächentechnik (INPLAS) e.V.

Kompetenznetz INPLAS e.V. is a network for the plasma surface engineering industry and research and their users. Plasma is an important tool when manufacturing high-quality thin layers and is the key to innovative surfaces and new products. The not-for-profit association was founded to reinforce the integration between research, business, politics, and society.

Facts and figures

Areas of innovation: Plasma surface technology

State: Lower Saxony (Germany)

Year established: 2005

Members: 47

Of which SMEs: 19

Cross-media strategies – linking regions and pooling innovation potential



Use of digital human models for the ergonomic design of machine and workplaces in the development phase and analysis of existing work processes.

The use of lasers in medicine has become an integral feature of operating theatres, doctors' surgeries, and physiotherapy clinics. In surgery, for example, they now occupy a set place alongside knives and scalpels. This is just one of many examples of the potential offered by partnerships between the two areas of optics and medical technology. The three clusters PhotonicNet, TechnologyMountains, and ICM-Institut Chemnitzer Maschinen- und Anlagenbau e.V. have further extended this potential with the "Cross-media strategies" project and have developed a sustainable service provision concept for their cluster actors to implement cross-cluster innovation and cooperation measures. The cross-cluster and cross-sector cooperation in the triangle formed by the regions of Lower Saxony, Baden-Württemberg, and Saxony gained new inspiration from the use of Web 2.0, with the objective of exploiting the innovation potential of the three clusters beyond the regions.

New marketing approaches for more efficient partnerships

The majority of the companies in the clusters involved are owner-managed SMEs with up to 100 employees. Frequently, insufficient time remains to pay due attention to the matters of cooperation, public relations, and marketing. Personal contacts play a major role in the business success

of these companies. Previously, contacts were approached and business contacts established in the traditional way using trade fairs. However, the expenditure on such practices in relation to the benefits is increasingly proving to be too high. This is something the three clusters are tackling with the "Cross-media strategies" project. To exploit the innovation potential by the greatest possible overlap of the different technologies, a communication and PR concept was developed that incorporates the "social web" and therefore permits new approaches for digital PR work.

At the start of the project, actors in the clusters concerned from industry and research were informed by newsletters and flyers about the cooperation planned with the other two clusters. A group of experts consisting of selected cluster actors then defined the three key overlapping areas as "LED technology", "optics meets mechanical engineering", and "medical technology". Work on project planning was divided up between the various cluster management teams according to the skills of each. PhotonicNet assumed the area of social media, while TechnologyMountains took care of regional marketing, and ICM e.V. dealt with the coordination of national networking. Another component of the marketing strategy was an accompanying event promotion aimed at identifying possible cooperation requests and existing innovations in advance and acquiring exhibitors and speakers from cluster members.

Modern range of services using Web 2.0

The basis for identifying suitable media strategies was the focus on the three main topics and the service concept target group. Use was primarily made of social media platforms such as XING and Facebook as well as of press releases and classic forms of maintaining personal contact such as working groups and workshops. The digital platforms set up were used to discuss and advertise the current topics of individual cluster partners across clusters in the form of innovation and cooperation forums. This took place, for example, via the “Optical technologies” group on the XING platform which has around 1000 members. The cooperation forums are continuously supported and moderated by the cluster managers so that demand and supply can be brought together as quickly as possible and achieve the best match. To supplement and continue the work of the forums, the subjects raised were taken up and more closely defined in jointly organised, topical workshops. It was then possible to feed the results of the workshops back into the forums and continue discussions, thereby using them for strategic planning.

Forums and working groups as a platform for partnerships

The cooperation forums offered participants a platform to communicate their expertise and enabled them to extend their business reach through the cross-sector and interregional contact with the actors from the other two clusters. Potential partners were able to be brought together face-to-face in the working group meetings. Requests for innovation could be linked quickly, efficiently, and sustainably to offers of innovation. Here, too, cluster management teams were active in supporting prospective partnerships.

Cross-media strategies – a measure producing added value

Cluster actors were able to develop new contacts through national networking. However, the most positive effects were achieved in the area of marketing. In this way, it was possible to raise the profile of the SMEs involved by using social media platforms. The project’s progress and successes were documented throughout its entire development phase so that these could be used subsequently as examples of good practice and could be transferred to other clusters.



Project title:

Cross-media strategies

Brief description:

Through the development and implementation of a suitable service portfolio in the cluster association, the “Cross-media strategies” project offers actors contemporary ways of using cooperation to realise innovation. This includes the supported development of a modern marketing strategy and event planning using Web 2.0.

Clusters involved:

- PhotonicNet GmbH Kompetenznetz Optische Technologien (coordinator)
- TechnologyMountains e.V. (partner)
- ICM – Institut Chemnitzer Maschinen- und Anlagenbau e.V. (partner)

Industries:

Medical technology, special purpose machinery manufacture, photonics

The sustainability of the service is partly achieved through the sharing of costs by participants in the cooperation and innovation forums, which are far lower than the exhibitor fees at trade fairs. In the meantime, the project has become an integral part of the service portfolio of the clusters involved. Plans for the medium-term include widening the subject matter and adding further cluster organisations, thereby opening up new areas of focus and overlaps and therefore new cooperation potential.



Dr. Thomas Fahlbusch



Yvonne Glienke



Dr. Ulrich Bobe

Interview with Dr. Thomas Fahlbusch (PhotoNet), Yvonne Glienke (TechnologyMountains), and Dr. Ulrich Bobe (ICM e.V.)

How were the regular working group meetings organised across the three regions?

The joint meetings were held alternately in the three regions. The time and expense of travelling to the destinations was thus distributed equally, and information about regional cooperation opportunities could be provided locally. In keeping with a cross-media strategy, use was also made of the option of telephone conferences.

How great was participation in the cooperation and innovation forums, and which methods were used to measure this?

Participation in the cooperation and innovation forums differed according to the nature and character of the event. Some meetings took place in a very select group. On these occasions, the areas of innovation and potential were

identified and addressed specifically beforehand. Personal contact between cluster managers made it possible to address selected cross-cluster partner constellations directly. Discussions and cooperation approaches were supported directly by the cluster managers. In these cases the assessment was carried out by the cluster managers involved. With larger innovation forums consisting of an innovation exchange (poster presentation or exhibition), main innovation input elements (lectures), and the corresponding times for innovation discussions, participation was measured according to the number of participants. It was possible to achieve excellent results here, with around 100 participants in the first event and approx. 300 participants in the concluding event.

Have non-disclosure agreements or similar agreements been concluded with individual users of the innovation forums? The innovation forums are to be viewed as an initiator for future partnerships between cluster partners; to permit simple introduction to this, we decided not to use non-disclosure agreements during the innovation forums. Sensitive information was then protected in a two-step process and was left up to the cooperation partners concerned.

Which successes of the “Cross-media strategies” project can you identify thus far?

A key success of the project has been the excellent experiences, which have emerged in particular due to the cross-cluster nature of the project. These days it is actually crucial for the marketing portfolio of a cluster to make wide use of the most diverse range of media strategies. As a hub for information exchange, the cluster organisations offer the SMEs represented here the possibility of acting as multipliers. Successes that we are especially proud of are the direct meetings where very specific discussions about cross-cluster partnerships have already taken place. The content of exchange beyond the level of everyday business offers the clusters greater transfer potential. The clusters are already planning further collaboration.

PhotonicNet

Innovationsnetz Optische Technologien

Contact

www.photonicnet.de

PhotonicNet GmbH

The primary task of PhotonicNet GmbH is the sustainable promotion of optical technologies in Lower Saxony and Saxony-Anhalt. PhotonicNet specifically encourages the development and use of optical technologies and photonics and continues to support their further development.

Facts and figures

Areas of innovation: Optics, photonics

State: Lower Saxony (Germany)

Year established: 2000

Members: 40

Of which SMEs: 13



Contact

www.technologymountains.de

TechnologyMountains e.V.

As a network in the area of precision engineering, the medical technology, plastics engineering, and micro engineering sectors work hand in hand at TechnologyMountains. The objective of the technology offensive is to create synergies, systematically promote and network expertise, and to push new innovations forward.

Facts and figures

Areas of innovation: Precision engineering

State: Baden-Württemberg (Germany)

Year established: 2005

Members: 136

Of which SMEs: 127

ICM

Institut Chemnitzer
Maschinen- und Anlagenbau e.V.

Contact

www.icm-chemnitz.de

ICM – Institut Chemnitzer Maschinen- und Anlagenbau e.V

ICM e.V. is a not-for-profit research facility for innovations and system solutions in the area of machinery and plant engineering. The research institute is a partner for direct assignments from small and medium-sized companies.

Facts and figures

Areas of innovation: Production technology

State: Saxony (Germany)

Year established: 1992

Members: 70

Of which SMEs: 37

Innovation Community – together on the road to precision medicine



New developments with the help of innovation management: metal sealing plug valve, 4-fold eccentric valve, actuator requiring no auxiliary power.

Medical technology and biotechnology have united with the Medical Valley Europäische Metropolregion Nürnberg (EMN) and BioM (Munich) clusters in order to solve urgent health issues through open innovation. The further development of precision medicine or P4 medicine is one of the prime objectives for both clusters. The four Ps stand for predictive, personalised, preventive, and participatory. Among other things, precision medicine aims to make progress in prevention and therapy for fighting cancer and diabetes as well as neurodegenerative, psychiatric, and cardiovascular diseases.

The objective of the “Cross-Sectoral Innovation Community for P4 medicine” project was strategic networking between the complementary medical technology and biotechnology sectors. Together solutions to the challenges of modern medicine are devised that enable a new type of preventive healthcare and healthcare provision. The cross-cluster project brought the knowledge and expertise of both areas together and initiated partnerships.

The open innovation platform – a new form of innovation culture

Various online and offline services were developed to establish the interdisciplinary community for P4 medicine. These were centred on an open innovation platform that was integrated in the cluster websites. Selected open innovation competitions flowed into this platform. The competitions set out the problems of cluster actors and were prepared with the help of the cluster management. For example, solutions were sought for the “radiation therapy of the future” or “computer-assisted gene analysis”. The open innovation platform offers companies the opportunity to source solutions to technical problems from experts in the networks. Issues can be discussed quickly in a straightforward way between the companies and experts and solutions devised. The “innocos” innovation management system from innofocus businessconsulting GmbH was chosen for the technical implementation. The platform makes it possible to conduct confidential talks in closed groups in protected areas in order to accelerate the innovation process. In addi-

tion, new contacts can be found and cultivated. For many small and medium-sized enterprises (SMEs) in the clusters, open innovation was a new way of exchanging ideas and solutions. The project therefore introduced the SMEs to a new form of innovation culture.

Use of familiar channels to reduce the barriers to entry

With respect to other online services, e.g. social media, recourse was made to established providers already used in the clusters, such as LinkedIn and XING. In this way, savings were made on expensive developments, the barriers to entry for those interested were reduced and it was possible to raise the profile of the Innovation Community. To this end, current news and calendar entries were posted, the open innovation competitions advertised, and new participants invited. The platforms could be used for discussions and for other services such as workspaces for projects and working groups, document management, etc. Accompanying offline services such as regular cross-sector workshops, lectures, and network meetings, some together with other initiatives, established personal contacts and trust and created a vibrant online community. The events took place approximately every three months, looked into trends in “P4 medicine” and highlighted innovative developments in neighbouring sectors. They were also used to define overarching innovation topics and supported implementation of joint projects. Experts representing specific cross-sector interest groups were obtained from both clusters to establish online and offline services. These will also continue after the project comes to an end. One of these subject areas is digitalisation in medicine and health. The Bavarian IT cluster BICCnet was brought in to cover this area.

The Innovation Community as a cooperation pool

The Innovation Community’s target group is made up of medical practitioners, pharmacists, scientists, medical technicians, biotechnologists, and IT experts. Cooperation projects between the actors are initiated from within the Innovation Community. To do this, the cluster management coordinates a targeted matchmaking of potential cooperation partners, for example. To further support cooperation activities, online functions such as “Searching/Offering” as well as protected project spaces are provided

Project title:

Innovation Community for P4 Medicine

Brief description:

A cross-sectoral innovation community with the help of various online and offline services was set up by the project and acts as a catalyst for collaborations between actors in medical technology and biotechnology.

Clusters involved:

- Bio^M Biotech Cluster Development GmbH (coordinator)
- Medical Valley EMN (partner)

Industries:

Biotechnology, medical technology

for joint project development. A funding team also provides information about all funding programmes and current invitations to tender relating to “P4 medicine”.

Especially SMEs benefit from taking part in the Innovation Community. The various services on offer within the project enable them to exchange innovative ideas, impart knowledge, and exploit technical synergies. This permits innovation leaps and boosts their competitiveness. The cluster management is continuing to lead the active community management after the funding period and provides the IT infrastructure. In the medium term, self-supporting funding is to be achieved by processing open innovation projects and charging companies for use of the platform. Since “P4 medicine” can only be achieved through an interdisciplinary approach, collaboration with further sectors is being expanded. Cooperation with information technology is to be intensified and other sectors, such as material sciences, integrated. The participation of more cluster actors from Germany, Europe, or worldwide in the online community is of particular interest with regard to the formation of European consortia within the scope of Horizon2020.



Dr. Andreas Berghammer



Marco Wendel

Interview with Dr. Andreas Berghammer (Clustermanagement BioM) and Marco Wendel (Medical Valley EMN)

How has the open innovation concept been received by cluster actors?

Wendel: Acceptance needs to be looked at in a differentiated way. In general, the subject of IT-supported open innovation in medical technology is not yet that widespread. It can be seen that cluster actors are still reacting rather cautiously to see whether the open innovation competitions held via the open innovation platform also produce sustainable solutions. However, interest is growing noticeably as more companies dare to become involved in the subject. The transdisciplinary exchange during events, by contrast, is very well received.

Berghammer: We have also been able to see a steep learning curve in the cluster; open innovation is still uncharted territory for many biotechnology companies. We have gone to great efforts to clarify matters, in particular questions about intellectual property rights and patent protection, which are extremely important to drug development companies. The project has offered food for thought and placed the subject of innovation culture firmly on the agenda. Whether open innovation can succeed in our sector as yet remains to be seen.

Are there any specified terms of use for the open innovation platform?

Wendel: Naturally, there are terms of use for the open innovation platform. These define the rules for using the platform and for the involvement of experts in the open innovation competitions. All relevant questions are dealt with in these, such as the rules of ownership to solutions

contributed, duties of the provider of the solution, selection procedures, confidentiality etc. This provides the greatest possible legal certainty in the open innovation process via the platform.

Berghammer: The explanations of the terms and conditions have answered most questions of our cluster actors and have dissipated many of their concerns. It is very important to explain these clearly to gain acceptance. With respect to the subject of IP, it is also necessary to get the technology transfer points of public institutions on board.

How has the maintenance of the open innovation platform been regulated between the two clusters?

Wendel: Each cluster has an access platform with its own design and which it also maintains itself; this is used to post relevant content for its own community. Open innovation competitions are run jointly. Partners from each cluster can take part in the central competition using their “own” cluster’s homepage. Contributions from both clusters flow into the competition. This ensures that further clusters and their cluster partners can be incorporated into the process easily and that the cross-cluster collaboration can be scaled.

Berghammer: The biggest task is preparing the open innovation competitions, i.e. defining and formulating the question. A balance must be struck between necessary background information and an overload of text that is perceived as a barrier to entry.

Have any other clusters or institutions from different sectors been incorporated in the innovation community yet?

Berghammer: We are in talks with BICCnet, the Bavarian cluster for information and communication technology. P4 medicine relies on the help of IT because very large volumes of data need to be processed, e.g. when evaluating disease-related genetic information.

Wendel: We also see great potential in the incorporation of other clusters dealing with suitable topics.

Contact

www.bio-m.org

**Bio^M Biotech Cluster Development GmbH**

Bio^M Biotech Cluster Development GmbH is the network organisation for the Munich biotechnology industry and is responsible for coordinating the Bavarian biotech regions (Biotechnologie Bayern cluster). The Munich Biotech cluster is characterised by close links between industry and academic research. The regional focus is on red biotechnology, or, in other words, the development of products and technologies for medical use in diagnostics and therapeutic procedures.

Facts and figures

Areas of innovation: Biotechnology

State: Bavaria

Year established: 1997

Members: Approx. 260 (no association structure)

Of which SMEs: 120

Contact

www.medical-valley-emn.de

**Medical Valley EMN**

Medical Valley Europäische Metropolregion Nürnberg (EMN) is characterised by a high concentration of medical technology companies, research facilities, and institutions in the healthcare industry. The objective of the cluster is to optimise the networking between science, business, and healthcare in a targeted manner, thereby shortening the innovation cycles of new medical technology products.

Facts and figures

Areas of innovation: Medical technology

State: Bavaria (Germany)

Year established: 2007

Members: 186

Of which SMEs: 110

Advanced mobility solutions for the North Hesse region



Traffic in the region is to be improved through innovative mobility opportunities.

The North Hesse region offers the advantages of an old, traditional industrial location and excellent research landscape and as such is a magnet for many young, ambitious businesses. The clusters deENet e.V. and MoWiN.net e.V. Mobilitätswirtschaft Nordhessen Netzwerk are also based here. Both clusters in the sectors of decentralised energy technology and mobility demonstrate high potential for synergies, especially at interfaces such as electromobility.

The “Nordhessen (Mehr)Wert” or North Hesse (added) value project aims to improve collaboration between the two sectors. Areas covered include mobility services, for example public transport in the North Hesse region. Innovative mobility concepts are required to ensure the region remains attractive to businesses and employees. Suburban concepts which guarantee simple mobility into the city from surrounding areas play a major role here. An example of such a concept is the RegioTram. These are hybrid vehicles that allow continuous journeys between the rail network of the Deutsche Bahn AG (DB) and the inner-city tram network.

Full-scale kick-off

Various activities were initiated for the project. The kick-off for the project took place at the beginning of the year during the 2015 cooperation forum of the North Hesse regional management. 80 companies gathered at this regional annual event, primarily from the mobility and decentralised energy technology sectors but also from other industries such as health and tourism. The cooperation forum is a platform for actors from business and science in the region and was therefore the ideal place to publicise the North Hesse (added) value project during the main programme and by means of an information stand.

It all comes down to the meeting of subject areas

The interface events constituted the central element of the cluster service. Relevant topics of common interest were

collated and prioritised with the help of a survey of members of both clusters; these included the areas of charging infrastructure, demand side management, internationalisation, and alternative fuels – and in particular e-mobility and fuel cells. The selected topics were examined in depth in a total of four interface events. Up to 30 people attended each event. External speakers made their expertise in the respective subject areas available, and examples of best practice in cross-cluster collaboration acted as an inspiration to new partnerships. The results and findings of the interface events served as the foundation for subsequent joint project proposals and further subject-related events such as working groups. All in all, two target-group-specific working groups, “Municipalities and cities” and “Industry and commerce”, were initiated. The principal topics covered by the working groups were energy efficiency in buildings, energy management systems, and renovation measures for public buildings.

Securing skilled manpower and expanding research contacts

In addition to the topical focus of interface events, part of the project also involved activities in the area of securing skilled manpower and expanding the research landscape. An entrepreneur day was held at the University of Kassel to help companies from both clusters recruit skilled manpower as well as giving entrepreneurs the opportunity to present themselves and their companies to graduates of relevant courses, thereby making early contact a foundation stone to securing the skilled manpower required. The companies that took part were Team Heese AG, MUT Energiesysteme, and Städtische Werke Netz + Service. Among the 20 students taking part, the courses “sustainable management” and “renewable energy and energy efficiency” were particularly well represented.

Other project activities included the joint development of ideas regarding relevant research issues and project initiation. This took place during a moderated “North Hesse R&D projects” working group which met every three months. Projects initiated dealt, for example, with the areas of energy efficiency and trade, intelligent networks, charging flexibility, decentralised producers, and the incorporation of electric vehicles as storage devices in an overall regional concept.

NordHessen (Mehr)Wert
Gemeinsam Fortschritt realisieren

Project title:

North Hesse (added) value

Brief description:

The project brings together expertise from the energy technology and mobility sectors. The principal aim of the collaboration, also in form of joint R&D projects, concerned intersecting areas such as electromobility.

Clusters involved:

- deENet Kompetenznetzwerk dezentrale Energietechnologien e.V. (coordinator)
- MoWiN.net e.V. Netzwerk der Mobilitätswirtschaft in Nordhessen (partner)

Industries:

Energy technology, mobility

A cooperation agreement safeguards future collaboration

The success of the measure was confirmed by an accompanying survey. Success factors included the number of participants in the events offered and the cross-sector contacts and ideas for potential collaborations created as a result of the measure. The findings obtained from project activities will be incorporated into the 2016 cooperation forum. In addition, all networks in the North Hesse region were given the opportunity to present their research ideas at the forum and engage in cross-sector networking. The events will also continue after the funding period in the form of working groups and workshops on selected topics of common interest. Preferred topics proposed in this connection are alternative fuels, energy efficiency in companies as well as corporate environmental protection and healthcare. After the support period, the services offered will be funded by adjusted membership dues and event-related sponsorship. The long-term objectives of both clusters have also been defined in a joint cooperation agreement between deENet and MoWiN.net, thereby putting the collaboration on a permanent footing.



Dr. Sabine Säck-da Silva



Markus Oeste

Interview with Dr. Sabine Säck-da Silva (deENet) and Markus Oeste (MoWiN.net)

Can you already mention any research questions or project ideas developed by virtue of the project?

Säck-da Silva: During this initial cross-clustering phase, the priority should be on networking during the lecture and presentation events. Getting to know partners outside of their own industrial cluster is designed initially to identify common interests and interfaces. The aim here was to create an initial basis of trust between the partners on which specific projects can be built in future. Details of research issues have been discussed by a core group of interested cluster members during the moderated North Hesse R&D projects working group. Relevant topics here focused on intelligent networks and electromobility as storage units.

Apart from e-mobility, which other intersections were identified for the project and investigated during the interface events?

Oeste: A previous survey of both clusters involved revealed that the biggest areas of common interest apart from e-mobility lay in charging infrastructure, demand side management, and internationalisation in emerging and developing economies. We have prioritised these subjects accordingly for specialist lecture events.

Säck-da Silva: The greatest rush of participants was seen at events on charging infrastructure and alternative fuels. Naturally, this was primarily due to the fact that the networking needs in this field and the overlapping interests of the two clusters are particularly attractive and tangible. Another factor was also likely to have been that events

took place at Plug'n Charge GmbH and the Mercedes-Benz Kassel works, which placed them in an exciting, practical background.

Have any other cooperation partners from the region decided to join the project?

Säck-da Silva: Both of our clusters are in contact with the CCA Competence Center Aerospace and DieMaschinenbau-Partner. We want to consistently extend cooperation with these partners, as exciting interfaces are indicated here. However, other networks are also interesting: the regional plastics cluster, the health and tourism clusters, the Hesse-China network, and economic development institutions, to name but a few. In February 2016, the cooperation forum offered a suitable platform to integrate these clusters more closely into our work.

What were the contents of the cooperation agreement between the two cluster organisations?

Oeste: deENet e.V. and MoWiN.net e.V. concluded an informal cooperation agreement which essentially set out formats for continuing the joint interface events and how we should advertise our clusters jointly and mutually by means of articles in the press, newsletters, and events. A final survey of cluster members also showed us that the cooperation is useful and also desired in future.

Säck-da Silva: We very much want to reinforce the collaboration by means of joint projects in 2016. We are both also interested in intensifying our search for exchange with other North Hesse networks, something that was also written into the agreement. The North Hesse (added) value project has furthermore succeeded in demonstrating how productive cross-sector network meetings can be, and in particular that there is great demand for stronger regional networking.



Contact

www.deenet.org

deENet e. V.

deENet Kompetenznetzwerk dezentrale Energietechnologien e. V. networks actors from business, science, politics, and administration. The objectives are to develop project ideas, initiate concrete partnerships, and in doing so strengthen the North Hesse region as a centre of competence for renewable energy and energy efficiency. The work of deENet focuses on the joint development of integrated system solutions in energy supply and decentralised energy as lever of sustainable regional development.

Facts and figures

Areas of innovation: Energy technologies

State: Hesse (Germany)

Year established: 2003

Members: 108

Of which SMEs: 45

MoWiN.net



Mobilitätswirtschaft
Nordhessen Netzwerk

Contact

www.mowin.net

MoWiN.net e. V.

The MoWiN.net cluster is directed at companies and institutions that operate in the mobility sector in the North Hesse region. The cluster stresses the competence of the region and its companies in the areas of logistics, automotive/vehicle construction, electromobility, railway engineering, public transport systems, and mobility and traffic management.

Facts and figures

Areas of innovation: Mobility sector

State: Hesse (Germany)

Year established: 2003

Members: 124

Of which SMEs: 54

Getting optical systems for medical devices ready for approval



The optical supply industry requires certainty in terms of the complex regulatory conditions governing medical devices.

New products and processes in medical technology not only improve quality of life but can also be life-saving. Due to their crucial importance to human beings, high regulatory conditions are placed on the development and manufacture of medical devices. This refers both to the supply industries and to medical technology itself.

With medConform, the two clusters medways e.V. and OptoNet e.V. offer a training concept that informs suppliers in the photonics sector about the regulatory conditions applying to medical technology. Part of the concept involves seminars aligned to the optical supply industry, which are organised jointly by the two clusters.

Whilst larger mid-sized companies are generally well-informed about applicable standards, barriers to innovation are seen when new products and processes are introduced by smaller companies and start-ups due to insufficient knowledge about statutory provisions.

It all depends on qualification

Unlike other sectors, a quality assurance agreement exists between suppliers and manufacturers in medical technology. This specifies precise time frames and defines clear personal responsibilities, for example for archiving documentation. Market surveillance following the introduction of the product is similarly clearly regulated for the supplier and manufacturer. As a result, employee qualification plays a major role, as do external framework conditions such as the setting up of production facilities and tools in accordance with ISO standards.

A series of workshops covering the basic standards, laws, and guidelines governing the quality and risk management, manufacturing processes, technical documentation, and market surveillance of medical devices as well as the requirements under contractual and product liability law was organised within medConform.

Tasks allocated according to skills

The service portfolio was implemented in close collaboration between the two agencies of medways e.V. and OptoNet e.V. Work was divided up according to the respective skills of each cluster: Due to its extensive experience in certified training on regulations in medical technology, medways e.V. was responsible for planning the content of the series of workshops. Suppliers from the photonics sector were analysed beforehand by OptoNet e.V. to determine the target group and ensure that the qualification provided met the needs of this group. The basis for the analysis was provided by the agency's regular member surveys. The cluster therefore knew which companies were involved in medical technology. Potential contacts from the SME and research environment were then invited to a kick-off meeting and the service concept was introduced.

Communication on an equal footing

The series of workshops was followed by a status seminar. During the seminar moderated by the managing directors of the two cluster organisations, the participating cluster actors coordinated the specific product requirements of medical technology manufacturers with the technical possibilities of the photonics manufacturers supplying these products. Through participation in the four specialist workshops, which an average of 20 companies and research facilities attended, suppliers had acquired a level of knowledge that permitted them to discuss technical issues with medical technology manufacturers on an equal footing.

Customised optical systems and faster production times

The services provided have made access to the medical technology market easier for the photonics sector in the long term. Owing to demographic change and high international interest in German medical technology, this sector is extremely promising for OEMs (Original Equipment Manufacturers).

The service enables optical supply companies to offer customised optical systems for medical technology applications. Both parties benefit from faster production times because there is no longer any need for laborious fine-tuning.

Project title:

medConform



Brief description:

The medConform service is a training concept that communicates the complex regulatory conditions in medical technology to the optical supply industry.

Clusters involved:

- medways e.V. (coordinator)
- OptoNet e.V. (partner)

Industries:

Medical technology, optical technologies, photonics

Opportunities for further development

Since medical technology also has other supply industries in addition to optics and photonics, further development of the service concept for plastics engineering, electronics, microsystem technology, and other technologies is possible. What is more, the regulations for medical products are subject to constant change. For this reason, the two clusters plan to offer the current seminar concept with updated content every two years. There are also plans to increasingly involve optical suppliers in the existing "Technology scouting – breakfast for experts" event format run by medways e.V. Here, too, technical emphasis is on current requirements of the regulatory environment for medical device manufacturers.



Volker Wiechmann



Dr. Klaus Schindler

Were any specific priorities identified within medical technology?

The training pursued two objectives: firstly to mediate a general overview of the regulatory framework of the medical technology sector, and secondly to look into the regulations, laws, standards, and guidelines of concern to the supply industry. In addition, it was possible to react to company-related problems during the training.

Interview with Volker Wiechmann (medways e.V.) and Dr. Klaus Schindler (OptoNet e.V.)

How did the cooperation between the two clusters come about?

medways and OptoNet have enjoyed good cooperative relations for many years. Activities aimed at securing skilled manpower or promoting foreign trade were conducted jointly and then led to the medConform project.

How is the collaboration between the clusters regulated? Are there written agreements?

Since the agencies of both clusters operate in one city, regular meetings are held on joint activities at a working level. Cooperation requires no contractual agreements.

How were members acquired for the services provided?

There was cross-sector advertising of the medConform series of events by both clusters using flyers and electronic media. The programme was posted continuously on the websites of Optonet e.V. and medways e.V.

What reaction has there been from the optical suppliers to the training offered by medConform?

The reaction and participation figures have been pleasingly high. Employees from typical SMEs to major corporations have taken advantage of the service portfolio. Since the training was modular in structure, interested parties were able to customise their participation in the programme according to their interests.

**Contact**

www.medways.eu

medways e.V.

Innovative products and processes for diagnosing and treating diseases that are greatly correlated with age are created by the member companies, research institutes, and universities of medways e.V. The industry focuses on optimal diagnostics and therapy for patients and efficient treatment methods for the doctor. For over 15 years, medways employees have been competent contacts for research projects, the approval of medicinal devices, the introduction of QM systems in accordance with DIN EN ISO 13485, and further training of personnel.

Facts and figures

Areas of innovation: Medical technology

State: Thuringia (Germany)

Year established: 1999

Members: 64

Of which SMEs: 32

**Contact**

www.optonet-jena.de

OptoNet e.V.

OptoNet e.V. pools the interests of some 100 actors in the Thuringia photonics cluster, fosters networking between them, offers a vibrant platform for sharing expertise and specialist knowledge, and stimulates cooperation. The strategic objectives pursued by the cluster are driving forward the development of optical technologies in the region, boosting competitiveness, and increasing the national and international visibility of the cluster.

Facts and figures

Areas of innovation: Optical technologies, photonics

State: Thuringia (Germany)

Year established: 1999

Members: 103

Of which SMEs: 79

Platform for simulation of composites in Germany



Possible applications for composites are diverse but not all companies are aware of them.

There is hardly another field of technology where cross-sector collaboration on issues of common interest is as necessary as in the manufacture and application of composites. Beginning with the deployment of many new and differently procured materials, to their use in completely heterogeneous industries with very specific requirements, this field is defined by its interdisciplinary nature. Perfectly tailored development, safeguarding and manufacturing processes involve enormous complexity. This includes extremely precise simulation methods and models. An exchange and networking of the actors involved is indispensable because everything centres on bringing together the needs of composite users, production process know-how, knowledge of materials, and simulation expertise. For this reason, the clusters Allianz Faserbasierter Werkstoffe Baden-Württemberg (AFBW) and the Virtual Dimension Center (VDC) for the simulation of composite materials and corresponding production processes have developed a joint strategy at a network level.

The importance of composites and need for simulation tools is growing fast

Due to their outstanding material properties, in particular the high strength at relatively low weight, composites are

increasingly becoming an important construction material in aviation, shipbuilding, in the automotive industry, medical technology, and many other sectors. At the same time, the simulation tools needed for research and manufacturing are not yet available as standard products on the market, especially not for entire production chains. Simulation has previously been at the end of the development and production process. However, simulation is now needed throughout the entire process because the development process chains of today include complex virtual development, tests, and optimisation.

Moreover, not all companies are yet aware of the versatile application possibilities of composites. This is the starting point for the collaboration between the Allianz Faserbasierter Werkstoffe Baden-Württemberg (AFBW) and Virtual Dimension Center (VDC) clusters. On the one hand, this project highlights the importance of composites and simulation while, on the other hand, it encourages cooperation opportunities between the two sectors.

The complexity of processing and application of composites demands cross-sector collaboration. Both networks have an excellent overview of the technological area of composite simulation and are therefore able to provide their actors with a comprehensive information service which ideally

brings actors together productively who previously had little involvement with collaboration, such as fibre manufacturers and the automotive industry.

Towards the composite simulation flagship project in four steps

With the industry working group, Allianz Faserbasierter Werkstoffe Baden-Württemberg (AFBW) and Virtual Dimension Center (VDC) offer services that are mainly aimed at producing an interdisciplinary exchange between actors. The following steps were taken to establish the service portfolio:

As a first step, a technology survey was prepared for the area of innovation of composite simulation. The survey sets out the state of the art, future potential as well as research and development requirements for composite simulation. Amongst other places, the results of the survey were presented at the 2015 Hanover trade fair.

As a second step, a group of experts was established comprising technology users, technology suppliers, and researchers (composite simulation flagship group) for SME. These involve AFBW and VDC members as well as others (who also offer potential for the networks). The group combines knowledge about content, structures, and innovation potential in the area of composite simulation. Here companies can request advice and can also register successes so that the information can be passed on to the outside world by means of relevant channels. The group of experts can be reached via an online platform as well as in person. These prerequisites create a competence centre coordinated by the AFBW and VDC to establish the specialist field of composite simulation as an area of expertise in Germany and Europe. The group was presented during the first targeted matchmaking at the “Composite Europe” trade fair and also took part in the event with a booth at the shared “Lightweight engineering from Baden-Württemberg” area. A white paper with comprehensive presentation of the vision, drivers, and obstacles to composite simulation, together with a strategy for cluster actors, was created using a road mapping process (moderated expert interview/discussion).

The third step encompasses the innovation management in the projects of cluster actors. The clusters recognised that the periods of time between the initial idea and development to diffusion in the market are very long in the area of

Project title:

Composite simulation

Brief description:

This project is designed to substantially improve national visibility of the cross-sector subject of “composite simulation” and widely improve the interdisciplinary exchange and knowledge transfer between actors.

Clusters involved:

- Allianz Faserbasierter Werkstoffe Baden-Württemberg (AFBW) (coordinator)
- Virtual Dimension Center (VDC) (partner)

Industries:

New materials, information and communication technologies, lightweight engineering, mobility

www.composite-simulation.de

composite simulation. At the same time, the political and industrial spheres did not yet identify much with this specialist area. These two conditions are extremely unfavourable for SMEs. They still do not have sufficient resources to find the right partners for their projects, integrate external knowledge in their deliberations, and bear a certain degree of entrepreneurial risk over long periods. Personal support in these matters is now available from the cluster management.

In a fourth step, the competence centre will be established as a medium to long-term service. To achieve this, other networks throughout Germany and Europe will be approached and integrated in the work, which includes extending and updating the road map. Future plans involve the preparation of an online composite simulation competency atlas. The white paper that resulted from the third project step was presented at the composite simulation trade congress in February 2016 in Hamburg. Networking beyond the borders of Baden-Württemberg and the expansion of the simulation congress to a national level are visible results of the project.



Ulrike Möller



Dr. Christoph Runde

Interview with Ulrike Möller (AFBW) and Dr. Christoph Runde (VDC)

What was the specific trigger for both of your networks working together?

Both networks have an excellent overview of the composite simulation technical field – but from different perspectives. In order to offer our actors a comprehensive service which ideally brings actors together productively who previously had little involvement with collaboration, such as fibre manufacturers, the automotive industry, and simulation system providers, it was only logical for our two successful networks to join forces. We recognised the potential of the network in this area early on and have been working together on composite simulation for four years now.

What aspects of the composite simulation industrial working group do your members value in particular?

The group is a pool of experts on equal footing. Care must be taken when compiling such a group of experts so that no competitive situations can arise during the open exchange. A truly open discussion cannot otherwise be guaranteed. However, the openness is the special charm of the group whose work together goes beyond the degree normal for a working group. Something like this naturally takes time and cannot be initiated overnight.

How does the group of experts work together?

The group is united by joint appearances at trade fairs, the preparation of joint publications, and project work. Meetings for open exchange, which each focus on different current aspects of technology, provide impetus and insight. Networks can transfer the innovative potential created during collaboration within the group to a broad field of

application in the outside world. The networks widely communicate the group's potential across all of their channels using the marketing tools at their disposal, which offers additional potential for all partners as well as new cross-cluster effects. The awareness of the expertise of members and the networks is vastly increased.

How can the subject of composite simulation be advanced in future? Which other application areas are conceivable?

A first step for further development has been taken already. The event format of the “Composite simulation” trade congress enjoys national visibility and, for the first time, was held outside Baden-Württemberg with additional partners in Hamburg in 2016. The simulation of composites will be significant wherever composites are involved – and that is wherever the extraordinary properties of composites is exploited. There is also the factor of energy savings resulting from the lower moving mass, which is of course not merely of interest to the transport industry but also to mechanical engineering or power plants.

Where do you envisage the greatest future challenges with respect to simulation?

The challenges are the material models: no relevant simulation results can be achieved without realistic material models. The enormous number of source materials, processing techniques, and production parameters results in complexity, not only with respect to the behaviour of materials and components but also their considerable variety. Where large companies in individual fields have acquired knowledge of this, such knowledge naturally gives them a strategic competitive advantage and is not publicly available. This makes it so difficult for composite simulation processes to penetrate industry.



Contact

www.afbw.eu

Allianz Faserbasierter Werkstoffe Baden-Württemberg e. V. (AFBW)

When it comes to fibres, the Allianz Faserbasierter Werkstoffe Baden-Württemberg e.V. (alliance of fibre-based materials in Baden-Württemberg - AFBW) is the first point of call in Baden-Württemberg. The cross-sector technology network fosters cooperation between companies, universities, and research facilities along the entire supply chain of fibre-based materials, from traditional textiles to functional fibre

Facts and figures

Areas of innovation: Fibre-based materials

State: Baden-Württemberg (Germany)

Year established: 2009

Members: 120

Of which SMEs: 70



Contact

www.vdc-fellbach.de

Virtual Dimension Center (VDC)

The Virtual Dimension Center is the first port of call in Germany when it comes to the subject of virtual engineering. Work takes place on topics such as 3D simulation, 3D visualisation, product lifecycle management, and virtual reality in joint working groups with technology suppliers, service providers, users, research facilities, and multipliers and is then made available to all network members.

Facts and figures

Areas of innovation: Virtual engineering, information and communication technologies

State: Baden-Württemberg (Germany)

Year established: 2002

Members: 81

Of which SMEs: 35

The “go-cluster” programme

“go-cluster” is the cluster promotion measure of the German Federal Ministry for Economic Affairs and Energy (BMWi). It brings together the most productive innovation clusters and cluster management organisations in Germany. The innovation clusters have excellent, efficient structures and support cluster actors according to their needs in various fields of activity. The innovation clusters taking part in the “go-cluster” programme are pioneers of innovation and reflect the high degree of competence in Germany in numerous sectors and fields of technology.

The “go-cluster” programme helps innovation clusters develop into excellent international organisations by providing advisory and other services. It also promotes innovative cluster services, such as cross-cluster concepts, and strengthens the networking of the innovation clusters at a European and international level.

The programme is primarily aimed at all efficient innovation clusters from Germany. Admission depends on satisfying the excellence criteria in the areas of “structure and composition”, “cluster management and structure”, “activities and cooperation”, and “visibility and impact”. It takes place using an application process. The application documents can be found at www.go-cluster.de.

Whether cluster managers, cluster actors or representatives from politics, research and business: “go-cluster” offers services geared to the needs of each target group. For example, innovation clusters taking part in the programme receive the following free advisory and other services:

- Certification of the quality and productivity of the innovation cluster using standardised assessment criteria based on European quality standards;
- Use of the registered “go-cluster” word mark and logo as a quality label;
- Assumption of costs for the European benchmarking and certification process for the Bronze and Silver Labels of the European Cluster Excellence Initiative (ECEI);
- Showcasing of the innovation clusters on the German Government’s “Clusterplattform Deutschland” website;
- Individual advice on subjects such as strategic development, financing, further development of the service portfolio, and the sustainability and stability of cluster structures;
- Seminars on current cluster management issues and cluster instruments;
- Public presentation of cluster work and selected innovation success stories (events, newsletters, web portals);
- Incorporation into and greater visibility in national economic policy initiatives; and
- Networking activities with the most productive innovation clusters from Germany and Europe.

Clusterplattform Deutschland is the joint information portal of the Federal Ministry for Economic Affairs and Energy and the Federal Ministry of Education and Research.

You can find a clear and compact overview of cluster-related activities at a national, German state, and EU level at www.clusterplattform.de. The cluster diversity in Germany is also presented with the help of a research tool with various search categories.

Are you interested in the “go-cluster” programme, or do you have any questions about it?

Information, advice and services:

VDI/VDE Innovation + Technik GmbH
Steinplatz 1
10623 Berlin
Germany

Hotline: +49 30 310078-387
Email: info@go-cluster.de
www.clusterplattform.de

