

Success from a virtual structure

A virtual organization coordinating the resources of 170 companies and research institutes is providing a dramatic push forward for German biotechnology.

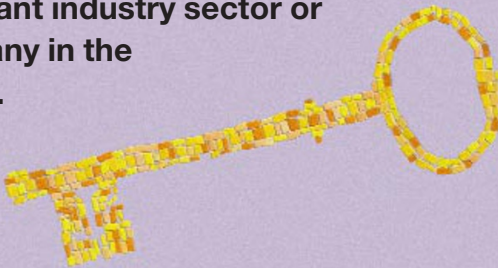
Uwe Jensen and Ursula Haufe

In 1995, the German Federal Ministry for Education, Science, Research and Technology (BMBF) appealed to companies within the German biotechnology sector to increase cooperation in order to spur overall growth in this government-targeted industry. Soon after receiving this call for action, 150 biotechnology-based companies and institutions in the triangle cities of Braunschweig, Göttingen, and Hannover in northwest Germany convened to find structures for a regionally established, centralized organization designed to promote future development. The participants in this early conference quickly agreed that development in biotechnology could best be served by an organization functioning along the lines of a virtual company.

In creating what became known as BioRegioN, the founding members started by considering the unique strengths and weakness of the life science organizations in the region. One particularity of the Braunschweig-Göttingen-Hannover area is the high concentration and balanced distribution of research institutions with strong engineering and natural science programs, small biotechnology companies, and large multinationals, such as Solvay, Kleinwanzlebener Saatzucht, and Sartorius. Yet despite the large numbers of companies and researchers in the area, there was little communication among neighbors except for the occasional discussion between pairs of companies. Therefore, an important goal of the BioRegioN network was to promote both communications among the regional players and interdisciplinary cooperation, a feasible goal since there was no dominant industry sector or company in the region.

The founders also agreed that regional business development, not specific product development, would be BioRegioN's central

An important goal of the BioRegioN network was to promote both communications among the regional players and interdisciplinary cooperation, a feasible goal since there was no dominant industry sector or company in the region.



task. In this regard, its goal would be to optimize the structure of the region's entire science network, and by doing so, it would promote new company development, leading in turn to new product development. The first stage of this process seems to be working: since BioRegioN's founding, 29 startup companies have been incorporated, producing some 200 jobs to date.

A unified front

The concept underlying BioRegioN is a simple one—a “virtual enterprise” enables all network members to access the resources of all the other members, allowing them to get help when needed to complete essential projects. Whereas new communications and interaction possibilities in traditional company cooperation are of little importance, the virtual organization makes intensive use of them. Partners can reduce underutilized capacities, or forget about them completely, and remain competitive because they can draw upon resources of the other “divisions” within the virtual company.

The virtual company is characterized by two main components, both of which are enabled by revolutions in data exchange and telecommunications technology: (1) a stable network relationship between the partners based on long-term cooperation through regular meetings and informal exchanges; and (2) partners working together in formally estab-

lished project teams or even additional virtual companies, depending on the project and market opportunities. These project teams and virtual companies present a unified front to prospective clients or customers, while providing the partners with the flexibility to adjust resource allocation to meet performance requirements.

The latter aspect is particularly important when you consider the breadth of skills and talents now found in biotechnology companies. Ten years ago, a young biotechnology company typically consisted of molecular biologists, microbiologists, and biochemists, while today's start-up often requires the talents of

organic chemists, laser specialists, microelectronic engineers, computer specialists, and businesspeople. Interdisciplinary applications such as bioinformatics, protein design, and other computer-supported technologies are increasing in importance, with a corresponding increase in the demand for scientists whose skills may be in short supply. The virtual company format allows the members to draw on the disparate talent pools actually employed by individual companies.

Building trust

Before virtual structures were established and used effectively, a particular atmosphere of trust had to be established between the partners. The most important goal during the initial phase of a virtual company was to build up a personal and intellectual foundation for future computer-assisted transfers of knowledge. Partners became familiar with each others' structure, competencies, and personalities through personal meetings.

Once a solid network of contacts had been established among the various companies and institutions in the area, the members established the following milestones to meet during BioRegioN's startup phase. These included: (1) Rapid assessment of the commercial importance of new research results; (2) Increased use of European research programs outside of the BioRegioN area; (3) Fortification of added-value cre-

Uwe Jensen is CEO of BioRegioN, Vahrenwalder Str. 7, 30165 Hannover, Germany (info@bioregion.de) and Ursula Haufe is managing director of NATI GmbH.

REGIONAL DEVELOPMENT

ation processes in the region by global sourcing; (4) Forming efficient marketing and distribution operations to benefit multiple members; and (5) Promoting new company development to close gaps in the supply of important technologies or skill sets.

As a virtual company, BioRegioN is organized in the same way as a normal company. At the head is the association's management, linked together in loose networks via computer-based communications and database management systems to provide maximum flexibility. Each member company contributes to the individual functions of the virtual company, including research and development, marketing, production, finance, and public relations. These functions, which are structured in the same way as the divisions of a company, are reflected in the infrastructure of the different specialist groupings. All staff members who "work" for BioRegioN are specialists whose posts are honorary, bringing to the organization the necessary expertise from their member company or research institute. The different backgrounds of those contributing to BioRegioN give all partners the opportunity to benefit from each other.

Every member company or individual entrepreneur seeking advice can be put in touch with a contact immediately as a result of the BioRegioN network. Scientists who want to convert the results of their research into products ready for the market can contact experts from the business and financial sectors. Likewise, it is possible for companies or company founders to inquire about the services that BioRegioN can offer, such as project scouting, business plan development, technology assessment, and capital procurement.

The various characteristics of the virtual enterprise create flexibility, one of the most important requirements that a company must have to survive in the markets of the future. Being able to adapt quickly to market conditions, to accommodate individual customer requirements, and to identify temporary market opportunities at an early stage are indispensable factors in being competitive. The strategy is market and customer-orientation, and the company organization must aim for these goals under the motto, "Structure follows strategy."

The structure of the virtual enterprise consists of loose associations of legally independent companies, institutions, and/or individual persons, who render joint performances on the basis of a common business understanding. The resources provided by the partners are aggregated into a virtual company to become a cooperative performance. In doing so, each individual company concerned brings its core skills into the virtual organization. New media, in particular the Internet, form an ideal platform, not only for

rapid internal processes of exchange, but also for an external image presented to potential customers.

Successes

More than 50 innovative cooperation projects are currently ongoing, with funding exceeding \$35 million. In total, more than 170 partners, arranged into 25 central competencies, form the structure of BioRegioN today. Since 1995, 29 biotechnology companies have been incorporated in the city triangle area: nine in Hannover, eight in Braunschweig, nine in Göttingen, and one each in Wolfenbüttel, Salzgitter, and Hildesheim. A total of 200 new high-tech jobs have been created in biomedicine, pharmaceuticals, bioinformatics, environmental biotechnology, biosensor technology, and plant biotechnology.

Three companies in particular—DeveloGen, Biobase, and BioVisioN—must be regarded as BioRegioN's greatest successes at the moment. DeveloGen (Göttingen) has received more than \$3.3 million in venture capital funds, and the company is using its expertise in developmental genetics to search for therapies against diseases such as diabetes and obesity. The company was incorporated out of the Max Planck Institute for biophysical chemistry.

Biobase (Braunschweig) was born out of academic research on molecular bioinformatics. The company's major business focus has been developing, distributing, and maintaining molecular biological databases and web-based information services for the biotechnology and pharmaceutical industries.

Research from the Lower Saxon Institute for Peptide Research, identified by BioRegioN, has been turned into BioVisioN (Hannover). This now-independent and self-sufficient company is developing methods for profiling the peptide constituents of human blood.

Transferring the concept

Participation in a virtual company demands continuous changes in structural and procedural organization. The success of BioRegioN suggests that the competitive advantages obtained from this structure—identifying biotechnology market opportunities at an early stage and creating advantages for market developments—can be of great value for small- and mid-sized companies endeavoring to survive and adapt to increasingly global markets.

"Knowledge is of little use unless it is applied," wrote Johann Wolfgang von Goethe, a German poet and natural scientist. Virtual companies heed this dictum by bundling knowledge in a specific field and transforming it into a marketable application by means of supra-regional and international cooperation. ///