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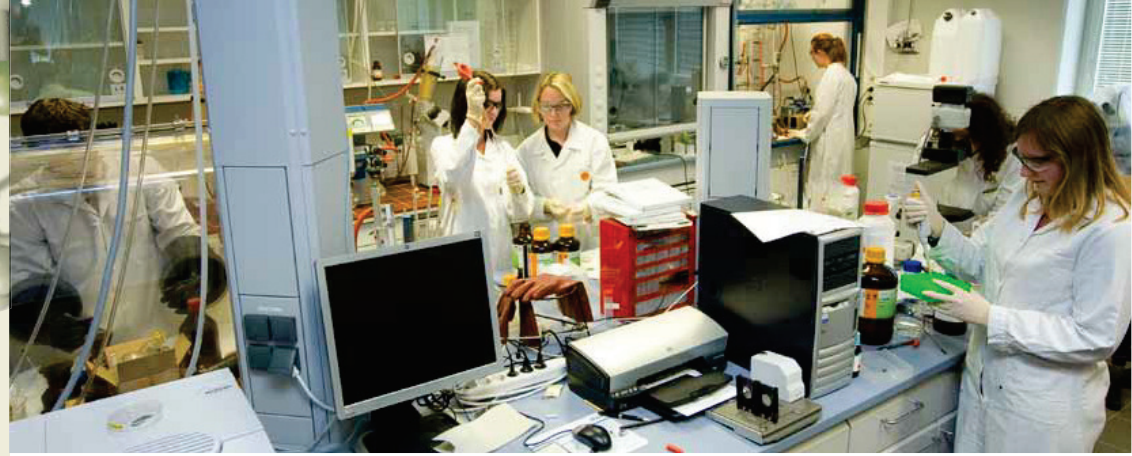
Ten More Years ... !

Dr. Johann Harer
CEO, Human.technology
Styria GmbH

Ten years ago the Styrian Human Technology Cluster was brought into being. Since then, much has been achieved; a whole sector of industry has redefined itself. Now human technology is one of the three major strategic topics of the regional government of Styria. As incoming manager of the cluster (from 1 November) I would like to thank my predecessors: Robert Gfrerer, who spent ten years setting up the cluster and developing it, and Richard Schanner, who has managed this year's transitional phase and set the cluster on the path to a new orientation. I'd like to thank all the people working in the cluster organization who have done excellent work and made the success of the cluster possible.
My thanks also go out to all the members of the cluster, who have supported the initiative loyally; by sharing their ideas and their expectations of the cluster, they have helped shape its direction and profile.
If I may introduce myself: I have been working in the pharma and medical devices industries for 25 years. I worked for AVL Medical Systems and, from 2000 onwards, in management positions at Roche Diagnostics. The goal and motivation of all my activities was to successfully bring innovative products to market.
As CEO, I will keep my sights on the same goals the cluster has been pursuing in recent years, continuing the focus on the three strategic corridors: pharmaceutical process and production technology, biomedical sensor technology and biomechanics, and biobank and biomarker technology. We are committed to use the synergies that exist within the cluster to benefit as many companies as possible in Styria, and to attract entrepreneurs and companies from outside Austria to set up operations here.
I am taking over a house in the best of order, but as we say, "what was good yesterday is not enough today".
I am looking forward to working with you all!

Sincerely,
Johann Harer



From Nowhere: Ten Years of Human Technology

A report on a newly discovered sector of industry, the emergence of a cluster, a level of active cooperation rarely observed, and a future perspective. Franz Zuckriegl gathered the pieces.

It is the year 2004. One year after Graz made a splash as Cultural Capital of Europe; the year when Austria's neighbors Slovenia, Hungary, Slovakia and the Czech Republic, as well as Poland, Estonia, Latvia, Lithuania, Malta and Cyprus became members of the EU. It was the year of the great Indian Ocean earthquake and tsunami, which claimed over 200,000 lives. The Austrian word of the year was 'pension harmonization', Heinz Fischer was inaugurated for his first term as president of Austria, Ernst Strasser resigned as Minister of the Interior and Elfriede Jelinek was awarded the Nobel Prize for Literature. A lot and not much has changed in these last ten years.

2004 was also the year of a European-wide boom in interest in the life science business. And in Styria – the region that had pioneered the cluster idea in Europe by launching the automotive cluster in 1995 – the makers of economic policy were considering whether, and how, they should sponsor emerging technologies. At the Styrian Business Promotion Agency SFG it was quickly realized that the life sciences were a good place to look for such technologies; but why were they not involved in that area and where would the region's potential lie? To answer these questions, an exploratory study was commissioned.

"We found out that Styria had a lot of activities that fit into the classical definition of Life Sciences, but also that we had something rather unique, in the form of an interface between engineering and medicine", recounts Dr. Karin Schaupp, an innovation and strategy consultant specializing in the area. "And in 2004 a lot was happening on the university front, for example with the foundation of the Medical University of Graz (Med Uni Graz)." Someone who experienced that side of events up close was Dr. Sabine Herlitschka, the then vice-rector for research management and international partnerships at the Med Uni – and now CEO of Infineon Austria. She says "It was a very smart decision, because individual organizations – whether they are universities or companies – don't have sufficient mass on their own. And, where else would this approach succeed if not in the 'clusterland' of Styria? For us as a freshly created university, the fact that the regional agencies demonstrably knew how to set up a cluster gave our confidence a big boost."

Looking back on the launch phase of the cluster, it is immediately striking that all the actors involved, from government, academia and industry believed equally in the potential of such a venture and all pulled together. Dr. Robert Gfrerer, the first CEO of the cluster, remembers "The mood was of an exciting new departure. Some people in the industry still had their doubts whether there would even be enough companies in the sector, because at first, only the few big players were visible. Essentially it was a start-up situation." For Karin Schaupp it was especially important at the beginning "to make clear to all the players how medicine and the pharma industry tick. This is a group of highly complex industries with high value-creation potential. And for one particular branch of these industries, Graz had a very special environment to offer – the constellation of a close relationship between engineering and medicine, and innovative companies like Roche, VTU and Neuroth was really quite unique."

From this bundle of competences came the name 'human technology', as an intentional contrast to the more biological-medical emphasis of 'life sciences'. "Looking back, I find the best part was

discovering that with a common understanding and fantastic cooperation between the three groups of actors – business, basic science and politics – we were able to set something in motion, even though at first it seemed that the potential was not sufficient."

The cluster's first lighthouses

Some months after the cluster was founded, at the first 'Future Conference' in 2005, the first milestone was reached: Representatives of the government, the companies and the universities signed the 'Declaration of Graz' and committed themselves to the new focus area of human technology. In 2006, the cluster began its training programs in quality management. The former CEO Robert Gfrerer remembers: "As a cluster we were able to help people understand the importance of quality certifications for suppliers. Together with our shareholder organizations we were able to raise awareness of this across the cluster member companies, and we developed shared introductory training programs for GxP certifications. As a result of this support by the cluster, for example, Payer GmbH achieved ISO-13485 certification and became a supplier of Roche Diagnostics."

Karin Schaupp

"I believe that not many years from now, Styria will be one of the European hotspots for 'personalized medicine'."

Another beacon for the sector came into being with the foundation of the Research Center Pharmaceutical Engineering (RCPE). Robert Gfrerer tells the story from his side: "When Graz University of Technology (TU Graz) succeeded in bringing Johannes Khinast back to Austria in 2006 with a Marie-Curie professorship, a brand new topic became visible in Europe: pharmaceutical engineering. The strategy consultant who was working with us at the time bumped into Khinast by chance in town. He called me right away and said we had to meet urgently. What he told me was that Khinast had just gotten approval for a fifteen-million-dollar grant from the National Science Foundation in the USA, together with Prof. Fernando Muzzio, for a project on 'Structured Organic Particulate Systems Engineering'. In Europe there was no equivalent and no partner institute for this subject, but it was important for us to get a bridgehead in the field. As we now know, this idea led to much more: After much negotiation with the regional government, the Federation of Austrian Industries and many other decision-makers at all levels, a K1 center was proposed and in December 2007 the RCPE Research Center Pharmaceutical Engineering was approved as part of the COMET program."

Karin Schaupp tells of more lighthouse projects: "The 'Future Conferences' were an excellent way of bringing people to Styria who didn't know the local scene. Their visits, and also the perfectly organized presentations at the big trade fairs such as Medica, were also lighthouse projects, because the companies saw that they were getting first-class support and international exposure." Another initiative that Schaupp values for its lighthouse effect is the RCPE. "The RCPE is world-class. That's what is bringing the biggest pharma companies to Graz." As in any sector, there are downs as well as ups: The transfer of the Roche Diagnostics operations from Graz to Rotkreuz in Switzerland was a big blow. Karin Schaupp: "Roche was a piece of good luck and a piece of bad luck rolled into one. We can't dictate business strategy to international concerns."

The highlights of the sector in the last ten years include the setting-up of further competence centers: the Austrian Center for Industrial Biotechnology (acib) in the field of industrial biotechnology, the Know-Center for big data and data-driven business, and CBMed, which is starting in 2015, for biomarker research. And it's also very important that many innovative enterprises in Styria, from small and medium enterprises to big companies, have discovered human technology as a market. In 2005, the cluster had 22 member companies, with 4700 employees and revenues of € 783 m. In 2006, there were 33 companies employing 10,500 people, with revenues of € 1.54 bn; and by the end of 2013, the tally was 80 companies, 14,300 employees and € 2.29 bn.

Future prospects

The philosophy of the cluster for the near future is smart specialization. At the moment about 14,800 people are employed in the entire human technology sector with around 130 companies and € 2.9 bn per year in revenues are being earned. The cluster is concentrating thematically on three main focus areas, the so-called 'strategic corridors': pharmaceutical process and production technology, biomedical sensor technology and biomechanics, and biobank and biomarker technology. Dr. Johann Harer, who is taking over as CEO of the cluster in November 2014, says he will continue the strategic emphasis on these three areas. And he says: "We are committed to using the synergies that exist within the cluster so that as many companies as possible in Styria benefit, and so that we can attract entrepreneurs and companies from outside Austria to set up operations here. And for me it's a big part of the mission to involve the non-industrial sector – clinics, university and non-university research centers – more strongly in the commercial economy."

From her vantage point as someone who knows the cluster well but is outside the organization, Karin Schaupp also sees very concrete future prospects: "The cluster has grown up. The existing strategic corridors still make sense and would be easy to expand. In future the cluster should become an even stronger platform for participative processes; the users should be involved earlier and more intensively. Internationalization is a key aspect, because pharma and medical technology are an international business. I believe that not many years from now, Styria will be one of the European hotspots for 'personalized medicine'."

K Centers in Human Technology

COMET – Competence Centers for Excellent Technologies is the name of the Austrian competence center program.

The COMET program is supported by the Ministry of Science, Research and Economy and the Ministry of Transport, Innovation and Technology and its mission is to implement a high-quality R&D program defined jointly by partners from science and business. The program encompasses three strands, dealing with different scales and types of initiative: K2 centers, K1 centers and K projects.

K2 centers are characterized by a particularly ambitious research program and consequently a very high risk in development and realization. They have a high level of international visibility and international connectedness. The support of the COMET program is intended to enable the group to jump to the forefront of the research field.

K1 centers focus on scientific and technological developments with a perspective in future markets. This strand of the program supports the establishment of competence centers that carry out research of both academic and commercial relevance in projects that are defined cooperatively between academic scientists and industry partners.

K projects give cooperative research teams space to pursue new ideas that have future development potential. The goal of this strand of the program is to kick-start high-quality research in collaboration between basic research and industry with a mid-term perspective (and possibly as a preliminary phase to starting a K1 center).
The federal state of Styria has a leading position in the COMET program and is currently involved in 22 of a total of 50 K centers in Austria. From January 2015, when the next round of K centers are due to be launched, Styria will be participating in 23 of 47 centers. The following Styrian centers are working in the field of human technology:

acib (K2 center): The Austrian Center of Industrial Biotechnology (acib) is developing new processes for industry (biotech, chemicals, pharmaceuticals) that are more environmentally friendly and more economical than existing processes. The new processes imitate natural processes and use them as tools. acib is Austria's competence center for industrial biotechnology, with locations in Vienna, Graz, Innsbruck and Tulln as well as in Germany (Hamburg, Heidelberg and Bielefeld), Italy (Pavia) and Spain (Barcelona).

CBmed (K1 center): The goals of the Center for Biomarker Research in Medicine (CBmed) are to identify novel biomarkers, to validate biomarker candidates and to carry out a full program of systematic translational research on biomarkers in order to facilitate development of new products for clinical use.

evolaris (K1 center): With the research area "Connected Life", evolaris is taking a logical step in the evolution of business-model innovations based on new technologies. The focus is on digital assistance systems based on wearables and mobile devices that make use of personalized and context-sensitive human-machine interfaces.

Know-Center (K1 center): The Know-Center is Austria's research center for data-driven business and one of the leading solution providers in this field in Europe. In the Know-Center an interdisciplinary research team uses cutting-edge knowledge-processing methods to generate added value from in-house and outside data sources for companies in the medical and pharmaceutical sectors.

RCPE (K1 center): In cooperation with the global players of the pharmaceutical industry, the Research Center Pharmaceutical Engineering (RCPE) does top-quality research on optimization of products and processes. The focus is on developing new delivery forms for medicines, production processes for these medicines, and monitoring methods for these processes.