

# >> **WHERE IS GERMANY HEADED?** TAKING STOCK AND LOOKING AHEAD.

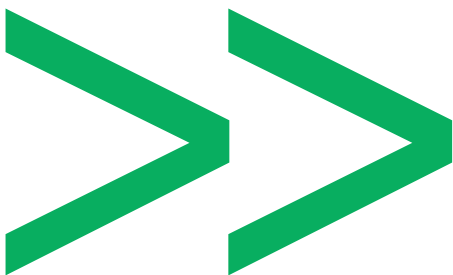
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Site development and site operation for the chemical industry

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# >> IF YOU BELIEVE THE DOOMSAYERS IN THE MEDIA,

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Central Europe and Germany are on the verge of collapse. Criticisms of the overall economy automatically trickle down to the chemical and pharmaceutical industry: Wage costs are too high. Skilled workers too scarce. Environmental regulations too strict. Business space too expensive. Energy costs too high. Sales prices too low. Competition from Asia too fierce. Local opposition too strong.

No question, the chemical industry faces daunting challenges. As sales markets and goods flows globalize and new production centers emerge, companies large and small are having to make unprecedented changes. This trend has been intensified by the shift to renewable energy and the growing scarcity of carbon-based raw materials; industry players see no alternative but to join forces. Mergers and acquisitions are rampant and affecting the number and structure of sites around the world.

However, there are absolutely no grounds for pessimism. Germany's chemical industry is in fine fettle and has excellent prospects thanks to an outstanding environment. This paper describes the best way to harness the industry's strengths, opportunities and potential locally. Its main focus is on running and developing the ideal site.

As the operator of Industriepark Höchst, one of Germany's premier chemical sites, InfraserV Höchst has some of the broadest, deepest experience in the field. And we want to share it with you.

We hope you enjoy reading the paper.



**Dr. Lothar Meier**  
HEAD OF BUSINESS DEVELOPMENT



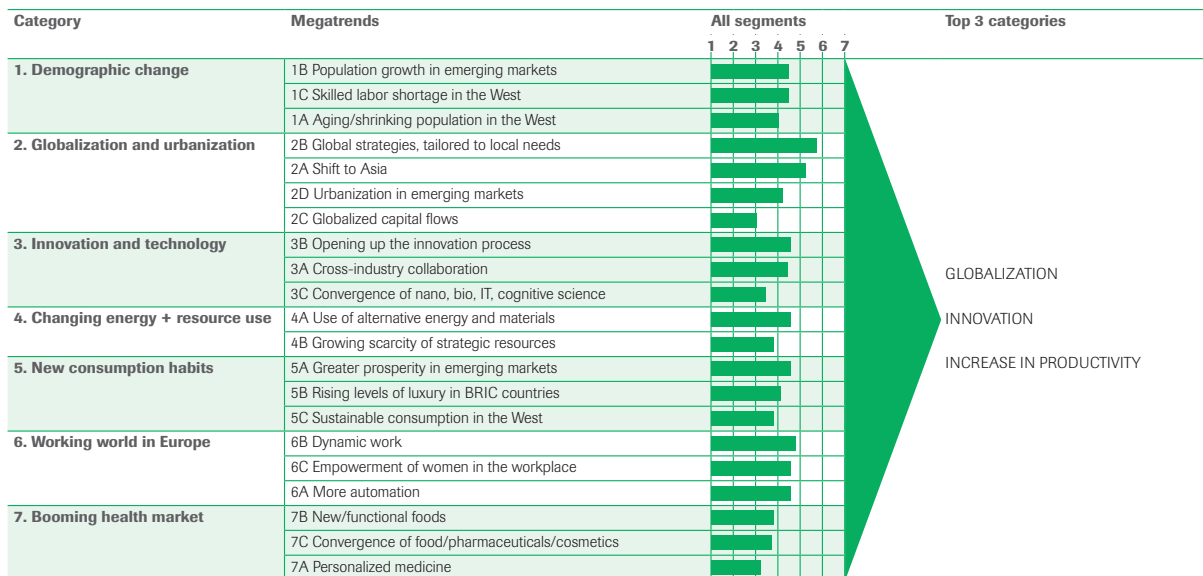
**Andreas Konert**  
HEAD OF MARKETING

# >> GERMANY: INNOVATIVE, PRODUCTIVE, GLOBALLY COMPETITIVE.

Global megatrends provide the only viable framework for discussing the current and future state of the German chemical and pharmaceutical industry, as illustrated in a study<sup>1</sup> by Dr. Hannes Utikal, a professor at the Provadis School of International Management and Technology. After conducting a qualitative preliminary study to identify universal and industry-specific megatrends, the research team asked over 20 international decision-makers to weight the trends by relevance.

The respondents ranked three phenomena particularly high for the period from 2012 to 2030: the globalization of their industry – especially rising demand and competition from Asia –, the need to innovate more – by opening up the innovation process, for example – and the protection of productivity advantages in the face of demographic change and a shortage of skilled labor in developed economies.

## MEGATRENDS IN THE CHEMICAL AND PHARMACEUTICAL INDUSTRY: RELEVANCE UNTIL 2030?



Scale: 7 = Very high relevance, 1 = Very low relevance

Source: Study: "The future of the chemical and pharmaceutical industry in Germany", 2012, Utikal/Kunz, Provadis School of International Management and Technology (Provadis is a wholly owned subsidiary of Infracore)

## GREAT OUTLOOK!

A realistic, thorough forecast will find that Germany offers more advantages than drawbacks for the period up to 2030. Indeed, it will continue to support the growth of the chemical and pharmaceutical industry well into the second and third decade of the millennium. The chemical and pharmaceutical industry is already huge in Germany: With a production volume of EUR 153.8 billion (2011), it is the country's fifth-largest production sector and is deeply integrated with the rest of the world, according to a recent Prognos study<sup>2</sup> commissioned by VCI. Germany is also one of the world's few net exporters of chemical products with around EUR 80.1 billion (2011) in exports.

<sup>1</sup> Utikal/ Kunz, Provadis School of International Management and Technology, Study: "The future of the chemical and pharmaceutical industry in Germany", 2012.

<sup>2</sup> VCI Prognos study: The German Chemical Industry in 2030, 2013.

German chemical firms may not grow as fast as their Asian competitors over the medium term, but Prognos still expects the industry to expand 1.8% per year. This growth will be fueled not only by growing demand in export markets, but also – and primarily – by domestic demand, especially in increasingly chemical-intensive growth industries such as carmaking, machinery, electrical engineering, rubber and plastics.

At the same time, winds of change are sweeping through the industry. According to VCI, the German Chemical Industry Association, the German chemical sector will focus more on high-end specialty chemicals in the future as more new applications are developed. The main driver: the automotive industry's insatiable appetite for chemicals. As energy prices rise – another global megatrend –, carmakers are looking for ways to shed vehicle weight and design efficient electric cars. This does not, however, spell the end of the basic chemicals segment. Germany will continue to produce its basic chemicals at chemical parks and in state-of-the-art industry clusters. Production will remain highly integrated even if not all German production sites survive.

## **TWOFOLD ADVANTAGE IN GLOBAL COMPETITION**

Germany's social and political stability has also created an environment that fosters innovation and improves productivity. Not only has this environment given rise to highly available, responsive production processes, but its predictability allows and encourages long-range planning. Students from Germany and abroad flock to the country's world-class educational system, which produces a steady supply of well-trained specialists. Even if experts warn that "up to 30,000 positions in the German chemical industry may be unfilled by 2030", there remains plenty of time to take counteraction in the short to medium term.

Although staffing costs may be higher than in Asia, Germany offers many comparative cost advantages overall. Tightly integrated infrastructure promotes innovation and raises productivity across industries. Innovations abound among small and medium-sized enterprises, who are more concentrated in Germany than anywhere else worldwide. Local clusters can build on a solid foundation, too: a large number of amenity-laden industrial parks that enable companies large and small to create synergies, speed up processes, cut unit costs and improve quality by sharing resources. This view has won over international investors: US companies have ranked Germany – with its 60 chemical and industrial parks where over 1,000 companies employ more than a quarter of a million people – as far and away the most attractive place in Europe for the chemical industry to do business.

## **DISADVANTAGE OR OPPORTUNITY?**

Innovation is also driven by factors portrayed all too often as millstones. Growing environmental consciousness and related regulations in our region have changed how the chemical industry thinks. German companies have become world leaders in eco-friendly, energy-saving products and production methods. Moreover, the pharmaceutical industry and its suppliers have seen strong growth in sales markets. In Germany and other developed economies, the growth is fueled by medical advances and population aging – by 2050, the number of people older than 60 will exceed those under 15 years of age [Source: Siemens]. In emerging markets, by contrast, rising demand is a reflection of greater purchasing power.

Overall, it is a rosy outlook – rising sales of high-value products, key advances in productivity, and plenty of the brainpower needed to keep driving the chemical industry's global development. Now is the time for Germany's longstanding chemical industry to reorganize itself so it can make better use of its potential.

# >> SITES: FERTILE GROUND FOR DEVELOPMENT.

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**When an industry undergoes a paradigm shift, production sites must adapt. After all, they can only remain globally competitive over the long term if they protect their productivity advantages and keep their unit costs down.**

Manufacturers tend to make astounding progress in core processes, especially in a country as innovative as Germany. However, other opportunities for improvement often lie fallow, especially when it comes to developing and managing production sites. In many places, infrastructure costs account for too much of the overall production budget. Resources are underutilized; opportunities are overlooked. Synergies are not leveraged in utilities, waste management or similar areas. Companies or entire sectors move away, but are not replaced due to an inadequate or non-existent site strategy. As a result, business space lies vacant and ties up capital, or key infrastructure facilities struggle with capacity underutilization and have to be shut down on efficiency grounds.

This happens for a very simple reason. Decision-makers are fully focused on making their company successful. Research, development, operations and marketing soak up all their attention, while they are often unaware of the need and benefits of long-term, end-to-end site development. As a result, they often fail to recognize their site's value and potential, let alone capitalize on it.

As our economy becomes more specialized, companies will have no alternative but to outsource non-core processes to specialists who can handle them more cost-effectively thanks to synergies and economies of scale.

## **SYNERGIES IN UTILITIES AND WASTE MANAGEMENT**

Services typically provided by specialized site operators include reliably supplying utilities and safely disposing of gaseous, liquid and solid waste. These external providers often achieve much better results than the manufacturer since they can tap into site-specific closed loop production models and cross-company improvements in energy and material efficiency.

## **THE CHALLENGE OF SITE DEVELOPMENT**

It is often difficult to find good uses for vacant land, factories, laboratories and the attendant utilities infrastructure and waste management facilities when industries downscale or move away completely. This trend will drive site consolidation over the medium to long term. Underutilized locations will close or be converted to other uses while larger clusters and integrated infrastructure systems in and around industrial parks will grow in importance.

In this light, it is important to realistically assess a site's future potential and position it accordingly. An external service provider not only has the knowledge to evaluate a site's potential and guide its development, but also the resources required to implement a development strategy – up to and including integrated site management and site marketing.

## **ATTRACTING AND RETAINING TALENT**

Site development also plays a pivotal role in the war for talent. Employees can now afford to be choosy, thanks to demographic change and many other societal trends. One day, workplace attractiveness will be just as important as salaries. The reason for this is clear: Shopping facilities, on-site childcare and health care services like site health centers do more than make life easier for employees. They unleash the full productivity of highly skilled workers with children by allowing them to enter the workforce instead of being stay-at-home parents. Also, more and more highly qualified people are choosing employers based on the availability of training. In short, employees will be paying much closer attention to site services, especially at industrial sites.

## **PROMINENT EXAMPLE: INDUSTRIEPARK HÖCHST**

Industriepark Höchst is perhaps the most prominent example of successful site conversion and development. This 460 hectare estate has, since the reorganization of the Hoechst Group, evolved from Hoechst AG's parent plant to a mixed-used park with 800 rental buildings where 90 chemical, pharmaceutical and biotechnological companies employ 22,000 people. Tenants are free to focus completely on their core business because they obtain all their infrastructure services from Infracore Höchst, the site operator. Despite widespread synergies, over 10 percent of all park employees work for Infracore Höchst, which illustrates the large role played by infrastructural services in the chemical industry's business model.

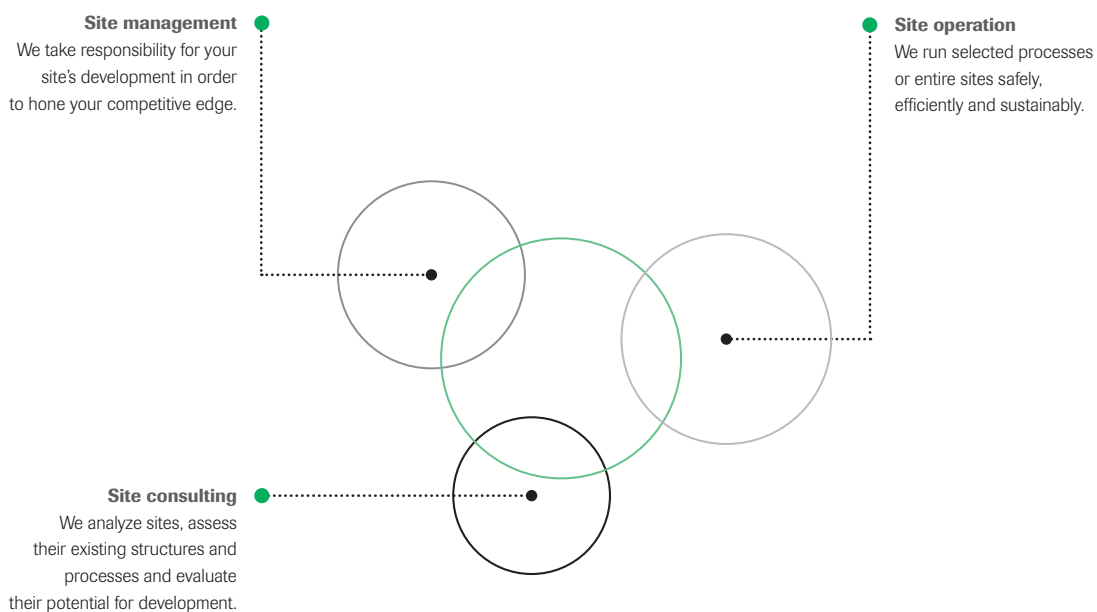
## **NOT JUST FOR LARGE SITES**

Outsourcing site operation to an outside provider is a good move for many sites, even if they are not large "chemical cities" like Industriepark Höchst. Whether they take on individual services or end-to-end site management, specialists have deep expertise that can boost productivity and cut costs. It does not matter if the estates are smaller or have a very different structure. These professionals can operate all types of sites: from single companies to campuses and major user sites [one main user and several smaller users] to standard multi-user models patterned on German chemical and industrial parks.

# >> INFRASERVICED: ENABLING SITE EXCELLENCE.

Everything we do must meet three key criteria: safety, sustainability and efficiency. Safety is paramount, especially in sensitive industries such as chemicals, pharmaceuticals, or biotechnology.

Safety goes beyond process reliability and industry-specific compliance requirements; it also refers to protecting people, property and the environment for years to come. Sustainability is part of our day-to-day business. We evaluate every new project based on its impact on society, the environment and the company's development. At the same time, all our efforts focus on maximizing the efficiency of every site that we manage. If all these requirements are met in full, we call the site "infraserVICED".



## IDENTIFY SITE ADVANTAGES IN FOUR WEEKS

Our customers value our high-level perspective and rely on the consulting expertise that comes with it. We deploy mature methods for analyzing sites or assessing processes and structures, which allows us to identify and evaluate a site's potential for development early on. Thanks to this expertise, we can guide and support our customers in making sound business decisions and executing on their chosen strategies.

Predictable results cannot be achieved without setting a baseline with a standardized procedure. InfraserV Höchst employs a method that has been developed and continuously refined over many years. Over the course of no more than four weeks, this process – which has clearly defined steps and responsibilities – produces a project plan along with key data and milestones for leveraging synergies and opportunities. An interdisciplinary approach taps into all available expertise through workshops with our customers' teams. That greatly improves participation and buy-in among employees, who are key stakeholders in this venture. Their support is essential to the project's success.



## ONE-OF-A-KIND SITE EXPERTISE

Infraserv Höchst has extraordinarily deep, broad expertise and decades of industry experience in many disciplines: From supplying utilities to properly disposing of waste. From streamlining supply chains to operating plants and infrastructure. From environmental protection to preventive health protection for employees. We integrate all these processes intelligently, transparently and in full compliance with all legal requirements.

### SITE SERVICES

People

Plants

Buildings

Infrastructure

Environment



### UTILITIES

Electricity

Natural gas

Cooling

Heat

Water



### WASTE MANAGEMENT

Wastewater

Biogenic waste

Refuse-derived fuel

Hazardous waste

Sewage sludge



### LOGISTICS

Inbound

Onsite

Warehousing

Freight Services

Training



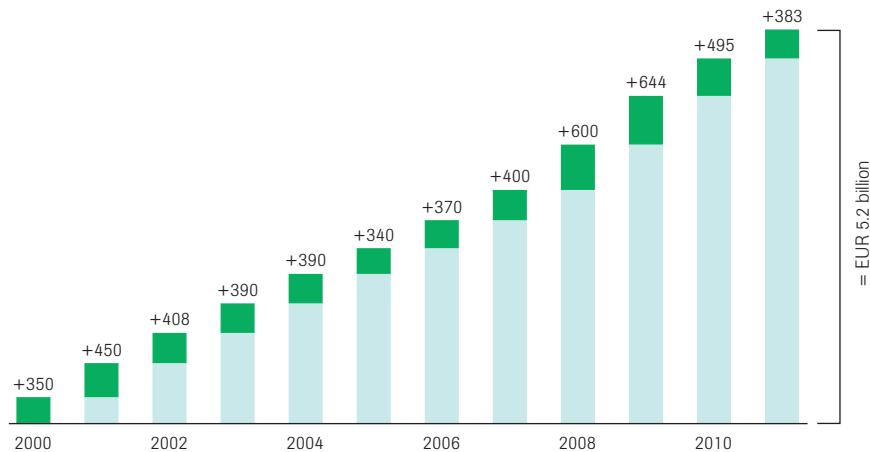
# >> WE DELIVER SITE EXCELLENCE – NOT JUST IN HÖCHST.

Industriepark Höchst is a prime example of a multi-user site with 90 companies and another 50 hectares of vacant land. At 4.6 km<sup>2</sup>, it is around twice the size as its suburb namesake and provides 22,000 people with work. The Frankfurt suburb of Höchst itself, by contrast, has only 14,000 residents. This speaks to the site's importance for the chemical industry – and the region.

Infraserv Höchst's forward-looking policies have ensured this flourishing industrial site has lost none of its relevance following the radical reorganizations of the 1990s. On the contrary, the number of employees has risen from 19,000 to 22,000 since the end of the 1990s.

Infraserv Höchst provides all services from A to Z at Industriepark Höchst: from standard site services – people, environment, buildings, plants and infrastructure – to supplying electricity, natural gas, cooling, heat and water. Infraserv Höchst treats wastewater, sewage sludge, refuse-derived fuel and hazardous and biogenic waste through its integrated waste management system. And it handles the full range of all-in-one logistics services.

Infraserv Höchst serves the education market through Provalidis, its subsidiary. Provalidis is one of Hesse's leading providers of training services with around 1,500 trainees and over 10,000 continuing education students. EUR 5.2 billion have been invested at the Höchst site since 2000.



Investment at Industriepark Höchst since 2000:  
EUR 5.2 billion

## **OPERATION OF INDUSTRIEPARK GRIESHEIM**

This storied 150-year-old estate in the Griesheim suburb of Frankfurt has had an eventful history. Though it now plays host to 32 companies, the 64 hectare site was originally transferred to Clariant AG in 1997 when Hoechst sold off its specialty chemicals division. Once Clariant stopped manufacturing in Griesheim, it began looking for a professional site operator. It eventually gave the job to Infracorps Höchst, who has been running and managing the integrated production site since September 1, 2009.

Infracorps Höchst's services include not only strategic facility management, but also construction, utilities and wastewater disposal. It additionally provides emergency response and fire department services, supplies compressed air, nitrogen, water and natural gas, and handles HR management, IT and communications.

This arrangement benefits Clariant in many ways: Not only has Infracorps Höchst invested over EUR 3 million in modernizing the park, but the costs are lower and more transparent. Other long-term benefits include higher service quality, more professional interfaces and the ability to hand off strategic responsibilities such as environmental and safety compliance.

## **OPERATION OF CREATIVE CAMPUS MONHEIM**

Infracorps Höchst has been operating Creative Campus Monheim for UCB, a biopharmaceutical multinational, since April 2012. Located between Cologne and Duesseldorf, Creative Campus Monheim features an outstanding infrastructure for what are currently fifteen tenant companies in the pharmaceutical, biotechnology and life science industries.

Thanks to its extensive experience with multi-user sites, Infracorps Höchst can unleash the potential for efficiency improvement in many infrastructure processes in order to make research and manufacturing companies more competitive.

## **SUPPLYING UTILITIES FOR NOVARTIS'S VACCINE PRODUCTION PLANT**

To satisfy the growing demand for vaccines, Novartis Vaccines significantly expanded its production capacity for rabies and TBE vaccines in Marburg. To finish the project, however, it needed a reliable supply of utilities. The company entrusted the conceptual design of its infra-structural facilities and the design and commissioning of its central utilities plant to Infracorps Höchst as a professional service provider with expertise and experience in site design and operation.

# >> ABOUT INFRASERV HÖCHST.

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**Frankfurt-based Infracerv Höchst is an operator of advanced technical infrastructure and a key partner for the chemical, pharmaceutical and related process industries. Infracerv Höchst leverages its experience and capabilities in site operation, management and consulting to deliver site excellence for its customers. The company, which operates Industriepark Höchst among other estates, provides site services, utilities, waste management and logistics services.**

The Infracerv Group's wholly owned subsidiaries include Infracerv Logistics, Provadis Partner für Bildung und Beratung and Technion, a pilot plant service provider.

Infracerv GmbH & Co. Höchst KG has 1,900 employees and 149 trainees on its payroll. The Infracerv Höchst Group has 2,700 employees and 174 vocational trainees. In 2011, Infracerv Höchst and its subsidiaries generated around EUR 1.2 billion in revenue.

Industriepark Höchst is home to around 90 companies in pharmaceuticals, biotechnology, basic and specialty chemicals, crop protection, food additives and services. Some 22,000 people work at Industriepark Höchst. The site covers 460 hectares; 50 hectares are still available for use. The companies at the park invested approx. EUR 383 million in the site in 2011. Total investments made since 2000 amount to around EUR 5.2 billion.

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