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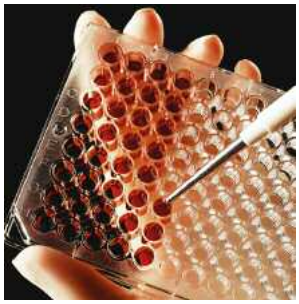
HESSEN

Chemical Parks in Hessen

Professional Sites and Services for Pharma, Biotech and Chemistry in Central Europe



Hessen – there's no way around us.

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2010

Content

Dear reader,

Dieter Posch

Hessian Minister for Economics, Transport and Regional Development

"Hessen – there's no way around us", this slogan fits perfectly the chemical, biotechnological and pharmaceutical industries, especially when companies are looking for new, suitable locations for laboratory or plant sites. Not only do all major transportation connections and hubs cut across or reside in Hessen – Hessen has also been known as the "world's pharmacy" for decades.

Within Hessen's chemical, pharmaceutical and – nowadays – biotechnological industry, tradition and modernity complement each other in a perfect way. The chemical and pharmaceutical history of the federal state dates back to 1668, when today's global corporation Merck KGaA was founded. Other examples of success stories "made in Hessen" were the "Behringwerke Marburg" founded in 1904 or the former Hoechst AG, which is now merged into the sanofi-aventis group.

Today, the chemical and pharmaceutical industry forms one of the leading economic sectors in Hessen, occupying more than 59,000 employees and yielding a turnover of more than 20 billion euro with an export share of 62 percent. In recent years, the young and dynamic biotechnology sector has become an especially important driving force for the success of the Hessian chemical and pharmaceutical industry.

Linked to development and diversification of the chemical and pharmaceutical sector, reliable and state-of-the-art infrastructures for business and production have emerged. Chemical parks are available for industrial settlement nowadays wherever big traditional chemical factory sites were located. Today, with Frankfurt as centre, altogether eight of these specialised areas exist in Hessen, located in the triangle between Marburg, Wiesbaden and Hanau.

Each of those chemical parks provides outstanding access to engineering and scientific know-how of ten universities and an excellent transportation infrastructure. According to the broad range of customers, each site shows a unique profile. All of them are run by professional operating companies, supporting their tenants before, during and after the settlement.

So, whether you are looking for a new, suitable location for your existing chemical or pharmaceutical business or if you just start your own business, just remember: "Hessen – there's no way around us!"

Dieter Posch
Hessian Minister for Economics,
Transport and Regional Development

Company Location in an Industrial Park – a good choice

Reasons that may give a chemical or biotechnological company the need to relocate include the extension of technological capacities, entry in new markets, a shift within the value chain or even the foundation of a new company. The planning of a new location can be supported by several instruments such as location-benefit-analysis or break-even-analysis. In common practice, such instruments are used to quantify and qualify arguments for different locations. Looking back about ten years, most chemical or biotechnological companies had only few opportunities, since they used their sites for research and development as well as for production and logistics. Since more competitive chemical industrial parks have come into existence, chemical and biotechnological companies can decide between a location based on a greenfield-approach site or locations within an industrial and/or chemical park.

Using the instruments mentioned above, chemical parks have notable benefits against greenfield settlement. Those benefits depend on the framework of the overall decision to relocate, as well as on the single criteria consulted for location choice. Within the framework conditions, one will find the purpose of the enterprise, the results of the normative strategy based on the location portfolio, the size of supply and sales market, eventually static topological structure of a supply-chain-network and the influence of environmental and waste management obligations. The following main criteria will be used to evaluate any location alternative based on these framework conditions:

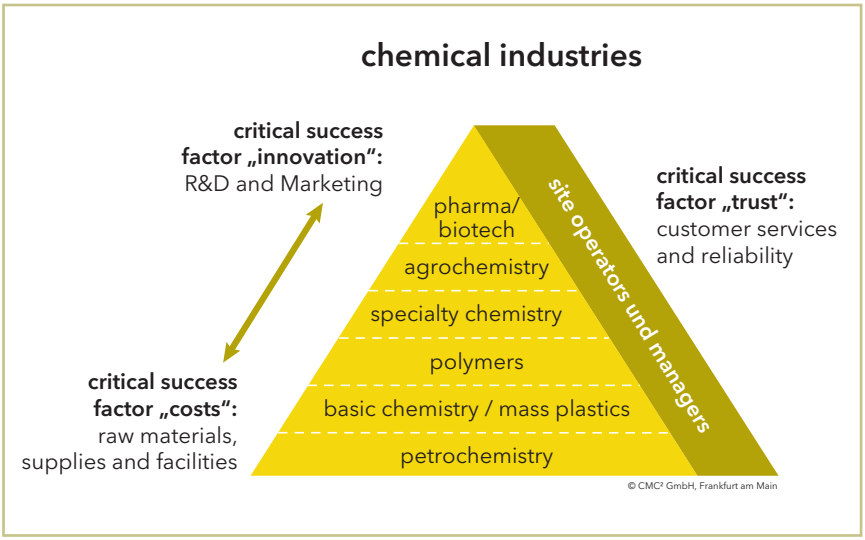
- **Local infrastructure**:
  availability of facilities and utilities such buildings in general and for special purposes such as laboratory work, housing, social environment or health care
- **Know-how**:
  educational and research institutions, research and development networks, availability of skilled staff, wage level
- **Logistics**:
  road and rail network, airports and waterways as well as hubs
- **Economical and political environment**:
  subsidies and exchange rates
- **Costs**:
  operation costs and transportation expenses
- **Supply and disposal**:
  availability of raw materials and supplies, waste water and waste management
- **Supply chain management**:
  proximity of time and place to sourcing and sales partners.

All of these criteria can only be used when an absolute measure can be defined and quantification of the criteria is possible. This is quite easy in the context of costs or time measures. In other cases qualitative criteria must be objectified by subjective estimation.

Within the value chain of chemical and biotechnological industry the criteria used might be weighted differently. For a mass production or processing chemical company, the criteria of raw materials and supplies may be more crucial than the innovative environment of a top-quality laboratory research and development surrounding. This is the reason why one has to determine the critical success factors for the enterprise, its main business and the individual location respectively and carefully.

As mentioned above, the critical success factors will be raw materials and supplies as well as plant intensity within the main businesses of petro chemistry, mass plastics and basic chemicals for example. For polymers and specialty chemicals, the customer proximity and services as well as raw material costs may occur as key factors. High-tech chemistry such as agro-chemistry, biotechnology and pharmaceuticals depend on innovative potential and marketing expertise. Any of those critical success factors can be recovered as evaluation criteria for location planning. However, intermediates such as quasi-commodities also combine different prosperity factors. For the operators of industrial chemical parks and sites, corporate success depends mainly on factors that include customer confidence gained by services, proximity and reliability and must be considered within the corporate strategy.

Pertaining to different studies, the following location factors are of particular importance for biotechnological companies:



- Accessible human resources, especially graduates from universities and polytechnics as well as other professionals; a common level of education.
- Interesting business networks, benefits from agglomeration of similar businesses and suitable academia and science.
- Availability and pricing of industrial space including storage and logistics as well as laboratories and incubators.
- The traffic connections of the region.
- Accessibility of venture and share capital.

Cultural and recreation offers, accompanied by financial incentives for formation or settlement of companies, also may be factors considered.

According to our experience, the key factors for location planning of a basic chemicals company will be the productive surrounding and the costs derived thereof for supply of raw materials and intermediate products. Other crucial factors in descending order of interest may be the proximity in space to a potential sales market, accessibility of human resources, special services supply (such as water, steam …), waste management, technical services and logistics.

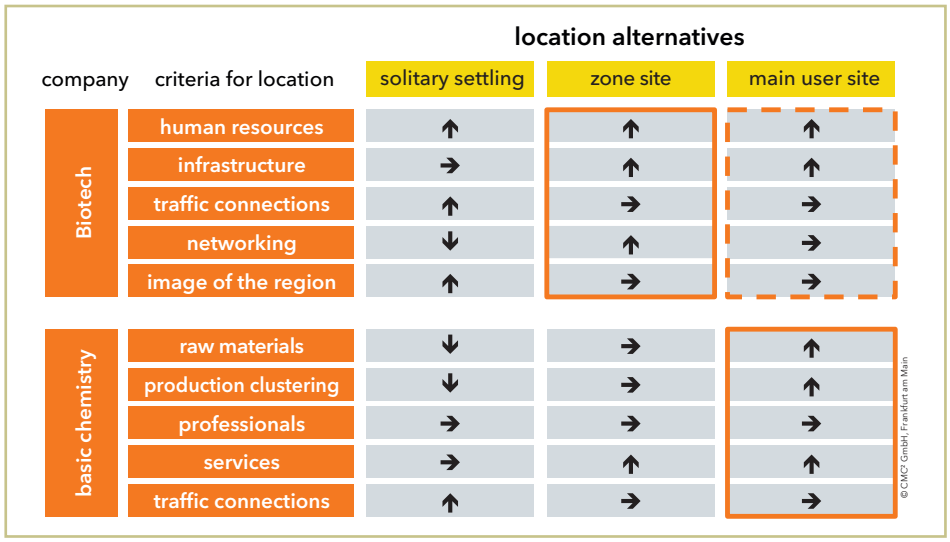
In principle, any chemical or biotechnological company has the alternatives of a solitary settlement "in the greenfield", such as in an industrial area, or of settlement within a clustered location such as a technology or chemical park. In comparison to chemical parks, technology parks will be less restrictively separated from their environment and will have fewer capacities in the supply, disposal and logistics fields. For chemical companies, these alternatives only occur if they obtain legal permissions to produce potentially hazardous materials in the special industrial area.

Best practice – two companies, three possible locations

Comparing a basic chemical and a biotechnological company three location alternatives can be set up.

First is a solitary plant, which is totally free with regard to planning. Secondly, a technological or chemical park will be considered with different settlement zones from basic chemistry through Pharma, research and development and logistics. Third alternative will be a main user location with a clear focus at one aspect of the value chain such petro- or specialty chemistry or Pharma.

As outlined above, the critical success criteria for a biotechnological company will be human resources, infrastructure, good travel connections, networking opportunities and the image of the region. The key factors for a basic-chemicals enterprise were set in accordance to the argumentation above with regard to raw materials and supplies, production clustering, qualified professionals, services offered and traffic connections. The evaluation of the three location alternatives is shown in image 2:



The comparison of the three different scenarios shows clear advantages for existing zone or main user sites:

The main advantages of the settling of a biotechnological company will be the infrastructure and surroundings for innovative research and development. All major chemical parks provide free scalable laboratory area, including range of facility management services. In almost all cases, existing industrial parks are conveniently placed with regard to transport facilities. That means that an optimum can be reached for any logistics-based processes. The variety of those processes may range from small-lot shipping to mail, courier and expedited services and further including highly sophisticated distribution of products by train or air cargo.

Settling of a chemical company is based to a high extend onto the value chain needed. In most cases, the settlement decision comes down to production clustering that originates with the site's main users. The more a chemical company's orientation within the value chain is placed, for example, in the mineral oil and natural gas sector (in the case of an orientation towards mass plastics or petrochemicals), the more necessary a local cracker or chlorine production will become. These dependencies and the usual lengthiness of legal permissions will render a settlement "out in the green" nearly impossible. Further services needed may be provided by an operator of a chemical park on customer's demand on a modular basis. Especially for foreign companies about to settle there, such operators provide major support in legal and regulatory affairs as well as recruitment processes. A detailed review of these critical success factors allows acknowledgment whether settling within a zone of a zone site or within a main user site is the proper decision.

The "community concept" of a technological or chemical park as settlement location for a company provides major advantages in general. Within the community of companies associated at the same site, material and information flow can be connected and synergistic effects by using common facilities and resources can be reached. This depends on the operating companies of technological or chemical park sites to position themselves at the location-seeking companies by choice of a professional location and facility management.

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Investments in facilities and utilities maximize failure safety

Great efforts are currently being made in enhancing cost-efficiency of production processes. In this context, production failures are quite seldom discussed as a reason for high production costs. "Production safety as long as it depends on our facilities like energy supply and waste water disposal is no issue for our customers – but it is a great issue for us!" states Michael Behling from InfraServ Wiesbaden. InfraServ Wiesbaden runs the Kalle-Albert Industrial Park as operating company and owner of the area, energy supply and waste management. "It's our daily business to provide the functional, cost-effective infrastructure solutions to keep the production processes of our customers running." What are the supplies and services usually provided by the operator of an industrial park – and how do they affect the maximum failure safety needed?

Standard services – must-haves with little effect on failure safety

Traffic connections, warehousing and logistics as well as telecommunication usually have little effect on production failure. Any industrial park or site has to be accessible by road, train or plane – for visitors, customers and especially for incoming raw material and outgoing products. The traffic connections and warehousing and logistics facilities have great effects on the decision of where to settle or whether to relocate, but have little effect on actual production processes. Material flow must be maintained by transport in the same manner in which information flow must be provided by an IT-system.

Additional services such as access control or an on-site fire department are usually requested during the regulatory processes of a production plant. The site operators provide these services to any customer at the chemical park and thus obtain security against unauthorised access, which may act more towards prevention of industrial spying than against acts of sabotage. For this reason, the effect on production failure safety is rather low. Local on-site fire departments have a greater effect – in the case of technical assistance or of serious incidents such as fires. Their efficiency might have positive effects on production-plant downtimes not only for the facility hit by an incident but also in the necessary idle periods of follow-up in other areas of the chemical site. However, the probability of such events is low, as is the effect on production failure safety.

Engineering and maintenance have more impact on continuous production

A much greater effect can be determined for energy supply as well as for engineering and maintenance repairs. At first, both are more or less cost factors during continuous production. However, standing maintenance especially keeps facilities in perfect working order and minimizes downtimes due to machine failure. Furthermore, continuous maintenance can be a welcome occasion to reduce energy costs, for example by replacing older pumps with energy-saving models within the production systems. For the operator of an industrial site, different energy consumption studies predict a savings potential of more than 50 percent by equipping the local heating system within the facilities with pumps of the newest, energy-saving generation. Investment return is completed in the short term and, of course, such investments also raise failure safety.

Investments in environmental protection measures gain a maximum of failure safety

In our opinion, the most interesting and efficient service for maintenance of maximum failure safety can be provided from the field of waste and waste water management or the whole field of environmental protection measures such as emission control.

Germany is one of the worldwide leading countries in the reduction of environmental risks. This has great influence on the legislative processes in the European Union as well as in the German Federal States such as Hessen. As early as during the corporate settlement process, a company may have to address for the first time different legal and regulatory statutes in the field of environmental protection. Furthermore, these regulations must be maintained throughout all production processes with regard to effects of emission control rules for exhaust air as well as waste disposal or waste water treatment. Violations of environmental protection rules usually have two consequences in common: heavy punitive damages and the costs of environmental restoration, since EU law commits a company to unlimited liability to any environmental damages caused by their production processes. Furthermore – in major cases – an immediate halt of production processes can be compelled to prevent further damages. With such potential consequences in mind, it is advisable for the companies in a chemical park as well as the site operator to put great efforts into environmental protection.

Large investments in environmental protection – a benefit for all resident companies

As operator of the Kalle-Albert industrial park, InfraServ Wiesbaden accepted the challenge of large investments in the environmental sector. The rebuilt sewage plant on the Rhine Island "Petersaue" nowadays is one of the greatest industrial sewage works throughout Europe. The capacity approaches that of the waste-water management of a major city with a population of about 1.2 million. Reconstruction and expansion costs were approximately 26 million euro within the last four years, with an exhaust air cleaning system as last step in 2009.

Within the eight treatment stages, the latest waste-water treatment processes were implemented. At one treatment stage, the waste-water contents are converted to sewage gas by anaerobic bacteria, which is forwarded to the InfraServ power plant and used as fuel for steam and energy production. Thus, every six hours the sewage plant produces the yearly energy requirement of a single-family home. Before the cleared sewage is passed into the Rhine River after 36 hours, other stages such as aerobics and sewage sludge removal are passed. To avoid odour emission, all cleaning stages are covered and any exhaust air is cleaned by a regenerative thermal oxidation system at about 850 °C. The state-of-the-art system minimizes energy dissipation by heat exchangers that preheat the raw gases.

A complex project management had to be established for this reconstruction and expansion project, since all work had to be done during normal operation of the sewage plant. The successful conclusion of the project marks another great step into best environmental protection at the Kalle-Albert chemical site and provides an increase of production failure safety for all companies located there.

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Plant Downtime

– intelligently planned and implemented, a sustainable benefit for the operator

Particularly in the field of pharmaceutical process plants, currently applicable regulations such as standards, directives, rules, laws and provisions represent an increasing challenge not only for maintenance planning but also for production control. Downtime management is becoming a core topic. In this respect, it is no longer just maintenance measures according to DIN 31051 that need to be taken into consideration. A whole host of other measures must be implemented either at set intervals or condition-based so that it is possible to continue operating plants in compliance with cGMP and the law. As a result, interests of production and plant operators very frequently clash with the guidelines of different technical departments such as engineering, occupational safety, quality assurance or validation. In the following, a number of optimisation approaches will be shown that will enable, on the one hand, the implementation of all necessary measures in a cost-efficient way while ensuring high quality and, on the other hand, the reduction of downtime to a minimum during the production process.

During the operation phase, expensive and complex manufacturing plants and auxiliary process plants that serve the production of pharmaceutical products are subject to a wide variety of requirements with regard to documented evidence of all implemented measures. This is in order to maintain cGMP capability and to inspect, maintain, or even convert the plant in line with the latest technological developments, with the aim to maintain the required status.

In practice, however, the implementation of these theoretical and required measures often proves to be difficult and complex. As a rule, it is therefore necessary that in pharmaceutical process plants the following recurrent activities be taken into consideration in particular where their implementation is concerned:

- **Maintenance** according to DIN 31051 and additional plant-specific standards, as well as according to VDMA 24 186
- **Calibration** of quality-relevant sensors
- **Re-qualification** after technical changes (within the scope of change control processes)
- **Validation / revalidation measures**, recurrent according to schedule as well as unscheduled
- **Safety upgrade or cGMP upgrade** of plants (plant conversion in accordance with the latest technological developments or currently applicable requirements)
- **Recurrent inspections** in accordance with Ordinance on Industrial Safety and Health (BetrSiVO), the German Equipment and Product Safety Act and the regulations of the German Employers' Liability Insurance Associations
- **Technical troubleshooting** during regular operation
- **Unscheduled (unplanned) repair**
- **Cleaning and sterilisation procedures**

This selection is by no means complete but it shows that due to the number and importance of measures, a well-planned, coordinated and documented approach is absolutely essential. In practice, however, responsibilities for the respective measures are frequently assigned to different departments and also often lodged and maintained in different database systems. In practice, time-optimised implementation of all measures in chronological order is therefore extremely difficult and not universally implemented most of the time.

As a consequence, this means high costs, long or frequent downtime periods and possibly even the repetition of certain activities because of incorrect procedure during implementation or incomplete documentation.

Likewise, only strict consolidation and central evaluation of data will allow an analysis of all measures in their entirety with regard to costs, time requirement and efficiency.

Determination of the Recurring Measures

All quality-relevant measures should already be included in the qualification guidelines during the procurement process of plants. These include, for example, maintenance contents and intervals, quality-relevant measuring points and their calibration parameters, routine re-qualification and validation measures as well as the determination of the procedure for short-term troubleshooting. In this context it is recommendable that all measures be collected in one asset file so that their synchronisation and, in particular, the interactions between measures can be determined. In practical terms this means that with minimal maintenance effort the effort for short-time troubleshooting is very likely to increase. This leads to downtime and incurs additional costs on the production side as a result of failure-related plant downtime.

It is therefore recommendable to determine specific measures with the involvement of the relevant departments and to define key performance indicators for evaluating the success of measures as well as of existing interactions. These measures should be described clearly in terms of content and tailored to the requirements of plant operation. Measures can be assessed and determined within the scope of a risk assessment or risk analysis and it is certainly also necessary to consider the fact that several similar plants can and should be grouped together in order to avoid quality differences in the process, i.e. that type-specific standardisation be implemented.

Implementation of Measures during Operation

Once recurring measures have been clearly defined in terms of content, the next step is the distribution of tasks. On this matter, qualified service providers or plant manufacturers should be commissioned ('outsourcing') who are to carry out these often very specific tasks. However, certain measures frequently are carried out by the in-house production and engineering department ('insourcing'), which increases the demand for coordination. Furthermore, it is an additional challenge to organise documentation of all measures in a standardised, meaningful and appraisable manner so that they can be easily assigned, analysed and filed. In practice, the following basic procedures can therefore have an improving effect on the process:

- **Minimisation of the number of involved units** or service providers (selective outsourcing)
- **Execution of supplier audits** and assessment of the level of performance and existing qualifications of the company to be commissioned in the run-up to commissioning
- **Combination of chronological measures** (e.g. maintenance, calibration, qualification and validation)
- **Use and evaluation of plant log books**
- **Introduction of standardised and controlled documents (protocols)** for implementation of measures

- **Use of only one database or validation system** (software)
- **Establishment of an electronic filing system** within the database software, if possible
- **Centrally performed review** of all implemented measures at yearly intervals, for instance
- **Measurement of effectiveness** by using predetermined key performance indicators
- **Optimisation of the overall process** (control circuit of improvement)

The combination of measures in particular reduces downtime significantly and consequently also the amount of time scheduled for production outages at the plant. There is further potential here for cost savings, since cleaning and sterilisation procedures generally must be carried out prior to shutdown. Of course, this also applies to the restart of plants, which then often must be accompanied by additional monitoring activities.

Evaluation of the Effectiveness of Measures

The evaluation of all implemented activities in a reasonable time interval is absolutely essential in order to determine their effectiveness. Furthermore, this has to be increasingly documented within audits carried out by authorities. In addition, this is not a static process, since the activities determined at the time of plant start up, such as scope of maintenance, calibration accuracy, revalidation measures etc., always should be subject to critical scrutiny. Is it necessary to do more or less?

Answering this question correctly does ultimately decide compliance with quality specifications and achievement of targeted commercial objectives.

The prospective definition of key performance indicators for the assessment of individual processes makes an objective evaluation much easier. Particularly, interactions should be included in key performance indicators.

The evaluation of technical faults (number of cases and cause) should be compared, for example, against maintenance intervals. Interdependencies will so soon become transparent and optimisation can be carried out.

Conclusion and Outlook

Plant downtime for the implementation of recurring measures will always be a necessary evil. However, it is up to the departments in charge and responsible for coordination to contain this evil and to improve the necessary processes. Primary target figures are always:

- **Reduction of plant downtime** (higher productivity)
- **Ensuring required quality** with regard to execution and documentation
- **Cost-effective implementation** of individual measures within an overall consideration (bundling of measures)
- **Reproducibility** of measures
- **Minimisation of the number of commissioned suppliers** (low audit effort and standardised documentation)

Whether goals are achieved can in practice only be verified or measured via objective analysis, which is ideally based on key performance indicators.

However, any increase in effort during the run-up period pays off quickly in practice and often helps to bring together the inevitably different priorities of the specialist departments in a constructive manner and to develop a common understanding.

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"Site. Fitness."

– best-possible cost structures as formula for success

Industrial sites can perform at a better competitive position through integrated concepts and professional solutions

Right or wrong?
Site operators are confronted regularly with one major argument: "Sites are causing costs one cannot get a grip on and that do little in the way of contributing to the competitive position of a location." Wrong!

To the contrary, operation of industrial sites and chemical parks offers great potentials in efficiency-enhancement for companies that produce there. Particularly chemical or pharmaceutical companies or other process industries with special infrastructure requirements demand a detailed and exact view on the costs of secondary processes surrounding the production process itself. Infraserv, the operator of the 4.6 square kilometer Industriepark Höchst, lately shaped their formula for success into a new product: "Site. Fitness.", which can help producing companies to enhance their competitive potential in the market by reduction of costs and optimisation of processes and infrastructure.

Detection of hidden costs – you can't manage what you don't measure!

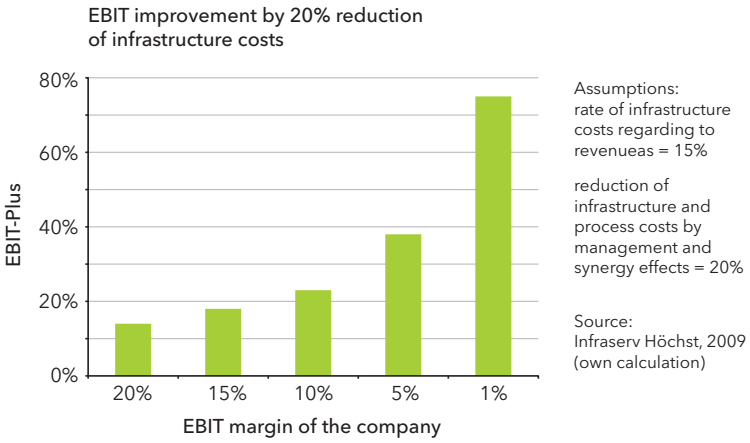
In manufacturing industries, infrastructure expenses to a high ratio of as much as 90 percent usually are allocated to production costs without being further viewed. Such dealing with expenses that directly debit the costs of goods sold (COGS) can determine prosperity and adversity of a company in the market, especially in testing times like those moulded by the present financial crisis and its repercussions. In this field, cost transparency is the essential basis for any further optimisation or even outsourcing of processes or infrastructure.

The questions to be asked are quite obvious but in the fewest cases easy to answer. Amongst them one will find:

- How can process flows be simplified, better managed or adjusted if necessary?
- Which synergy effects can be used?
- What is the average workload of a facility or plant and what are the peak and off-peak values?
- Where can standardisation gain profit?

Infraserv uses the Six Sigma quality management method as a tool to describe, measure, analyse, improve and monitor business processes. Within the last four years since Six Sigma implementation, Infraserv reached an overall benefit of up to 43 Million Euro. Major practicable projects include energy savings in production or in running costs of buildings, pooling of waste and waste water. "Up to 20 percent potential for savings can be identified within infrastructure and process costs by professional management and synergy effects!" states Dr. Roland Mohr, managing director at Infraserv Höchst.

The image below shows a sample calculation for EBIT improvement based on EBIT margin of the company. Assuming that infrastructure costs account for a fifteen percent rate regarding to revenues, 20 percent of savings potential in infrastructure costs can sum up to an EBIT rise of up to 75 percent depending on the EBIT margin of the company.



Improvements of process performance – even sideshows raise your power to compete.

Jürgen Vormann, CEO of Infraserv, Frankfurt states, "When companies try to revise their processes in order to improve their competitive position, they mostly concentrate on their core business. But the performance also depends on infrastructure and secondary processes." Usually, a chemical, biotechnological or pharmaceutical company lacks detailed know-how on infrastructure processes. Thus, cooperation with experts in facility management has to be established. In interdisciplinary teams consisting of the service provider at one side and the affected representative experts of the customer on the other, process steps with potential for improvement can be determined. Such potential is quantified, for example, with statistical methods like Six Sigma. On this objective basis, promising projects can be identified and pushed towards realisation.

In one example at Industriepark Höchst some material within the process waste of a chemical company could identified that was suitable for recycling in the local biogas plant. In 2007, Infraserv invested 15 million euro to obtain biogas from sewage sludge and organic waste from chemical processes. Nowadays, the organic waste determined is used to reduce the demand on fossil fuels and the emission of CO_2 may be further reduced.

Fast markets need flexible production infrastructure

Markets convert continually and constantly faster – thus increasing pressure on producing companies to move forward and change. Particularly chemical industries in the current economic crisis have had to face great challenges within a very short advance warning time. Almost all of the companies still struggle to reposition themselves under new framework conditions.

Infrastructure issues in a producing chemical, biotechnological and pharmaceutical company often and especially remain quite unaffected by such repositioning processes. Investments are high and long-acting and – as mentioned above – do not take place within the core business fields. With respect to rather limited know-how, one might ask the question of why a company should build, run and improve those facilities at all. In chemical and industrial parks, these services have been rendered by the operators for years while the costs are procured collectively. For the single company, such a "coalition" usually means a major financial relief. An additional benefit for improvement of the competitive position emerges on the long run:

An operator specialised in management of infrastructure and facilities can react more flexibly and much faster to newly emerging challenges. Only a professionally-operating company can provide capacities to acquire new partners at the location and thus keep or gain common facilities at an optimal workload level. For the single company, the overhead costs and the risks of a weaker utilisation of an infrastructure facility are split and a significant part is taken over by the operator. This reduction of costs creates capacities for a further company development and growth.

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Professionals – how to face a new critical success factor in site management

Germany and the Hessen / Rhine-Main-Area within are quite popular for industrial settlements in comparison with other locations of the European Union. Settling in Hessen means direct access to best-possible trained professionals. Downtimes in production caused by staff on strike are very rare, since highly skilled employees often also are highly motivated. Due to efficient working safety strategies, the same minimisation applies to downtimes caused by plant failures or personal injuries. Thus ongoing training has become a critical factor in site management – the implementation of a comprehensive approach to gain a locational advantage is described in the following.

Germany and Hessen: Stable investments in 2008 and prospering outlook for Biotech Industries

After a remarkable decrease in the recruitment plans, the global labour market trends within Q4 / 2009 show a slight change for the better, such as noted in the quarterly Manpower Employment Outlook Survey (MEOS). In sum, the worldwide run for talents noticed in 2007 and early 2008 might recover, as about 40 percent of all employers saw remarkable difficulties in filling the gaps within their staff with the right persons. Focusing on Germany, the overall 28 percent increase of investments mainly was fuelled by new regional headquarters for German or Eastern European markets, as well as by industrial demand for business services and software[1]. Therefore, finding qualified personnel remains a significant factor in location choice and settlement processes. In a survey in the beginning of 2009, nearly 60 percent of the Hessian biotechnology companies expected a long-term increase of their staff[2].

In the future, innovative strength, which is based between the poles of knowledge[3] and creativity[4], will decide on the success and failure of a region. Additional to knowledge and creativity, qualified co-workers are known to be highly motivated, which increases working efficiency and reduces plant downtimes because of strikes and the like.

German employees – best-possibly trained and cost-effective

As mentioned above, Germany is quite popular within the European Union in the location of plants or even (European) headquarters. This occurs quite frequently in the Frankfurt area of southern Hessen, due to its proximity to leading banks and venture capitalists. Companies appreciate the high-skilled employees available in the German market. In addition, Germany's great advantage is the cost discipline: labour costs grew only approximately 2.2 percent during the last nine years, regardless of location in Eastern or Western Germany. This is a clear contrast to other, lower-cost countries in Europe like Romania or Greece with growth rates of 22 or 7.5 percent respectively. Even other well-known participants in the settlement marketing competition such as Ireland have maintained a labour cost growth of more than five percent during the last years.

Combining this long-term cost-efficiency with the very low plant downtimes in Germany compared to the average of all industrial nations, a prevalent cost handicap remains in name only. Experts predict that Germany will be able to compete even on the labour cost level[5] if the discipline is maintained through the next years.

1 Ernst & Young, European attractiveness survey 2009

2 "Standortstudie Hessen-Biotech", Hessen-Agentur, 2009

3 J. W. Cortada "Rise of the Knowledge Worker", Butterworth Heinemann, 1998

4 R. Florida "The Rise of the Creative Class", Basic Books, 2003

5 IW-Trends 03 / 2009, Institut der deutschen Wirtschaft Köln, 2009

Facing the shortage of skilled workers – local education and training programs within chemical parks

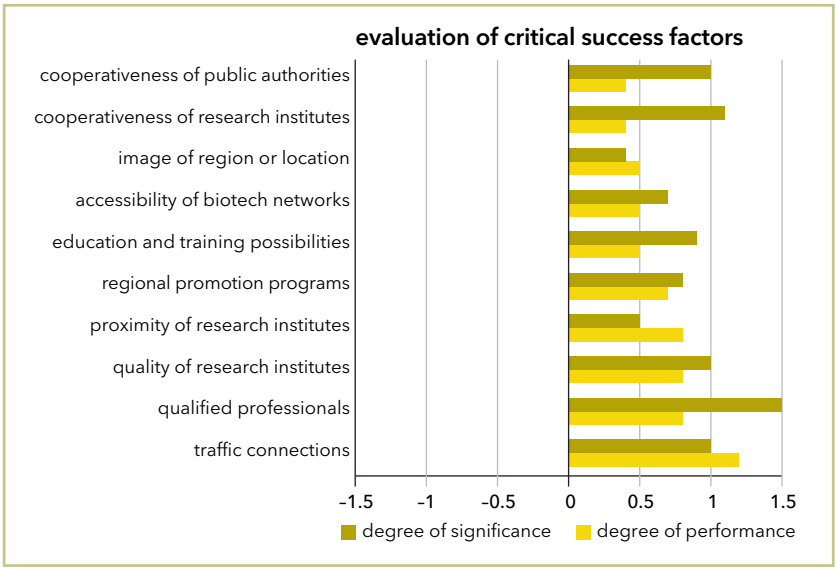

Image 1: Evaluation of key prosperity factors among hessian biotech companies, "Standortstudie Hessen-Biotech", 2009

Already during the development of early chemical parks, many operators of such sites acknowledged the sign of the times and established companies specialised in education and training. One of the largest providers of such services is Provadis GmbH, located at both of the chemical parks of Frankfurt-Höchst and Marburg. Since its foundation in 1997 and as a service for about 60 companies, Provadis provides continuous in-service education for approximately 1,500 young professionals and approximately 10,000 participants in training courses. Together with different other education and training contractors in the local society "Weiterbildung in Hessen e.V.", Provadis takes effective countermeasures against the shortage of skilled workers predicted for all industrial nations in the future.

Complete coverage of biotechnology in education and training

In addition to the variety of apprenticeships aiming at an associate degree level such as "biotech lab technician" and special trainings on-the-job for further techniques and skills such as courses in "capillary electrophoresis" or "preparative separation methods", Provadis recently established the School of International Management and Technology. Biotechnology is covered by a bachelor's degree course in biopharmaceutical science. Within several integrated degree programs the attendants of the Provadis School can easily combine studies and job aiming at Bachelor and Master degree level. The School of International Management and Technology thereby complements the existing university education opportunities with a special focus on practical experience. In the past, participating students usually passed through an apprenticeship with subsequent study and graduation.

Projection into future: Livelong learning maintains innovation potentials

Regardless of the study consulted[6]: The lifelong job at one place, in one company, with one responsibility and professional competence represents a dying breed. In the future world of employment, educational hierarchies will fade away giving way to a lifelong, voluntary and self-motivated pursuit of knowledge called "lifelong learning". Adult learning unsnaps professionals from beaten paths. Not only does it increase innovation potential – it increases attention to newest findings and to their professional implementation in new products and services. It raises production failure security as well by enhancement of awareness with regard to a changing job-related environment.

6 e.g. „Adult Learning: It is never too late to learn" Communication from the Commission, EU, 2006

About the Author

Dr. Udo Lemke is CEO of Provadis GmbH, which is the biggest provider in educational and training services in the Rhine-Main area with approximately 10,000 participants in training courses and 1,500 apprentices. The courses include bachelor and master degree courses at Provadis School of International Management and Technology.

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Maximum support in settlement project

Histology and morphology start-up relocates to newly-formed Campus Oberhafen

In many aspects, the relocation of Morphisto GmbH to the new-formed Campus Oberhafen biochemical park is a premiere: Morphisto was the first start-up to be founded out of the Senckenberg Research Institute in Frankfurt. It is also the first company offering biological services, research and development to be located in the newly founded Campus Oberhafen biochemical park. Hessen-Biotech asked the CEO of Morphisto GmbH, PD Dr. Michael Gudo, for the key success factors that led to the decision of settling there.

Hessen-Biotech: Dr. Gudo, what were the ideas and reasons that led to foundation of Morphisto GmbH in 2005?

Dr. Gudo: A couple of years ago I was involved in establishing a new central histological and morphological laboratory at the Senckenberg Research Institute. During that time we had the idea of a company that is based on providing laboratory services and own scientific research. From the beginning, additional business fields were added, mainly production of specialty chemicals like histological dyes and fixation solutions. Training courses for students, teachers and researchers evolved from our own teaching background in university and the Senckenberg Research Institute – as well as conception services for scientific exhibitions and support in scientific collections. All business fields intersect at the knowledge gained in the histological or morphological laboratory.

Hessen-Biotech: So during the first years you were located in the Senckenberg Research Institute?

Dr. Gudo: We started with one office and one laboratory respectively. But due to constant growth of the company and increasing personnel during the first three years, even a local expansion in office and laboratory space brought just temporary relief. In the end of 2008 we reached the point where the Senckenberg Research Institute could not offer additional workspace we would have needed. But we still have a small settlement at the SRI as we are further working on special orders of the Senckenberg institute and museum collections.

Hessen-Biotech: Campus Oberhafen is a quite new site and many would expect a start-up company to like Morphisto to settle in a business incubation centre. Which alternatives to relocate did you consider and how did you get to a decision in the end?

Dr. Gudo: After thinking about settling in a business incubation centre, the idea to relocate in a chemical park emerged from an interview I read in the newspaper with a CEO from a greater chemical company. Within that article he offered support for small start-ups from the chemical or biological field by letting laboratory or office space at affordable prices. Based on this information we had a close look at several locations in Frankfurt and around, from big industrial parks to the university's business incubation centre.

Offers differed with quite a broad range – from some 1920s buildings to highly sophisticated up-to-date labs. In the end Campus Oberhafen met our needs perfectly regarding office and laboratory space, as well as equipment at the best cost-benefit ratio. Another crucial factor came to the fore during the more detailed discussions. Since Morphisto GmbH actually is the first tenant in this building, we nearly have unlimited opportunities to expand without having to relocate again. Already during refurbishing of our rooms here, we had the option to pre-reserve lab and office space for further expansion. We're going to use this option in the near future to further expand our training and laboratory services.

Hessen-Biotech: Could you describe the timeline and progress of the movement a bit more detailed?

Dr. Gudo: After we decided to relocate in the end of 2008, we inspected Campus Oberhafen in January 2009. The agreement was signed in the end of March and the relocation took place at May, 1st this year. As the laboratory in principle met our needs in the best-possible way, we could draw back to the site operator's offer to refurbish the laboratories and offices. Additionally, within the very short time at hand, a completely new pure water system and special exhaust hoods were installed. The possibility to finish such a project in such a short time, in my opinion, mainly depends on the excellent project management of BEOS which is the Campus Oberhafen operator and the collaboration with GIS Infrasite, a facility management company also located here at the campus.

Within the project group, BEOS did the project planning and cost estimation. Thereafter we decided on a cost-benefit analysis, which modifications should be realised and GIS Infrasite ultimately executed the whole rebuilding and refurbishing. I'm still utterly amazed how fast and smooth everything went off without a hitch.

Hessen-Biotech: As you outlined, your business is quite prospering. What are your further plans at Campus Oberhafen?

Dr. Gudo: We want to implement a batch production of dye solutions an so on in the future. In this case we also can rely on a close collaboration between BEOS and GIS Infrasite, which ensures access to a best possible guidance in the field of storage of hazardous goods as well as logistics of those products. Their good contacts and experience in dealing with public authorities and regulatory affairs will be very helpful, I assume.

Additionally we are going to offer special training in morphological and histological methods. Those methods used to be one of the core fields at biological faculties in academia in the past. But as other methods like molecular biology came up, morphology and histology were pushed back a bit. In addition, many histological laboratories were closed or rebuilt for other purposes. So besides training, Morphisto GmbH faces requests from academia and the business world for subletting histological laboratories on a research project basis. We thereby provide knowledge and working space, the treatment of specimens is actually performed by the researchers themselves. This "Rent a Lab" concept reflects a bit of the traditional research station in the purpose of a Felix Anton Dohrn, who set up the first marine research station in Naples, Italy some 140 years ago.

Hessen-Biotech: Dr. Gudo, we thank you very much for your time and this conversation and furthermore good success!

Dealing with Regulatory Requirements and Public Authorities

Saving time and money by concentrating on core businesses

Newly-settling chemical, Pharma or biotech companies face more or less the same challenges in building a new location: regardless of whether they are start-ups on their way to initial settlement, new subsidiaries of foreign enterprises or local companies planning to extend their facilities, they must deal with regulatory requirements and with public authorities monitoring their implementation. Additionally, regulatory affairs such as planning and building laws, operational approval or safety regulation are usually not the core business of a chemical, pharmaceutical or biotechnological company. In many cases, a site operator is able to cover those duties as a service. However, also external contractors might be worth a thought.

BEOS as the owner of the industrial park Campus Oberhafen provides commercial real estate and project management in developing locations throughout Central Europe. The case of the laboratory and industrial park Campus Oberhafen differs from other projects, since laboratory sites and small chemical, pharmaceutical or biotechnological production require special know-how in dealing with the different regulatory requirements and public authorities involved. BEOS therefore relies on the services of the local facility management company GIG international facility management GmbH (GIG).

A triple-win situation

At Campus Oberhafen and on behalf of BEOS, GIG operates daily business such as security services and catering and carries out duties involving repairs, refurbishing and the like. Furthermore, the facility service provider acts as operator of laboratory area and administers GMP-conform production as well as the stocks of hazardous materials. Operations are the strong suit of GIG, especially with sophisticated, interdisciplinary processes. GIG provides solutions for special customer needs that require many different services. As the third group of participants, public authorities benefit from a central contact within the regulatory and monitoring processes.

Projects and services realised

One of the German subsidiaries of Aeterna Zentaris, a global biopharmaceutical company, is located at Campus Oberhafen. Being one of the leading companies in drug discovery, GMP compliance is essential for the company's success. With its subsidiary GIS Infrasite, GIG provides and maintains cleanroom technology and reception and dispatch of hazardous goods as well as special waste management. Additional mandates cover equipment inspection and testing as well as warranty tracking for engineering services.

In the case of resettlement of Morphisto GmbH to Campus Oberhafen, GIG successfully provided help in any applicable issues of water pollution and emission control as well as maintenance of industrial health and safety standards. At a certain point of progression of the settlement negotiations, specifications of regulatory requirements were discussed with the customer and the necessary approvals for company operations were fixed in a roadmap. These subsequently were obtained. In cooperation with external partners and local authorities, GIG thereby prepared risk assessment as well as explosion prevention documents. Currently GIG supports Morphisto GmbH in obtainment of quality management certifications according to DIN-ISO 9001 and CE.

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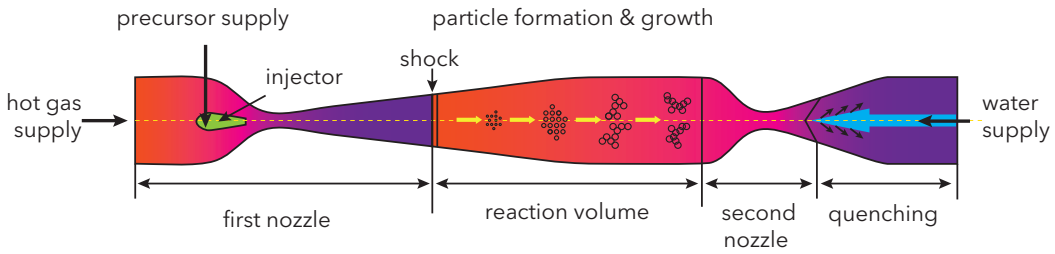
Local know-how fuels basic research

Process technology of Evonik at Wolfgang Industrial Park leading in development and set-up of a pilot plant for nanoscale particles.

reactor principle of function:



benefits expected:

very fast heating and cooling rates, gasflow streaming and temperature profile, narrow particle size-distribution and low particle aggregation

Development of novel methods and technologies is still carried out usually by individual research groups. Subsequent technology transfer from basic research usually takes place in companies. At Hanau-Wolfgang Industrial park, researchers and engineers joined a public private research project including the site operator's special service for development and set-up of pilot plants. In the project cooperation between Evonik Industries and no less than 25 researchers and engineers from different universities and research institutes, the group successfully performed up scaling of a gasdynamically-induced particle synthesis reactor in an unexpectedly short time.

Technology transfer to pilot scale plant

According to the encyclopaedia, 'basic research' traditionally is carried out more to increase understanding of fundamental principles than to develop technical applications or even to gain commercial benefits. Hence, fundamental research usually is independently funded and publicly administered, usually by a governmental research foundation. Private funding by industries normally takes place in the case of transition of a basic research topic into applied research for new products or development of improved production processes. At Wolfgang Industrial Park, more than 25 researchers and engineers from seven universities and the German Aerospace Centre in cooperation with Evonik Industries and the German Research Foundation (DFG) tried another track: in a public-private research project, they recently accomplished a project in developing a pilot plant for the synthesis of nanoscale particles directly in a gaseous phase.

The preliminary concept for the gaseous phase reactor was developed at the Universities of Aachen, Duisburg-Essen, Karlsruhe, Munich and Stuttgart, as well as at the German Aerospace Centre in Cologne. Since Wolfgang Industrial Park (IPW GmbH) already was in charge of realisation of the project management, the project group entrusted "IPW ServiceCentre Technology", an on-site engineering subsidiary of IPW GmbH, with construction of the pilot reactor. "IPW ServiceCentre Technology" specialises in plant construction, apparatus engineering, process control technique and maintenance.

Totally new process in synthesis of nanoscaled particles

Within the pilot reactor, a model process for the synthesis of inorganic Metal Oxides particles was developed to production line status. Instead of producing nanoscale particles by nanogrinding ("top down-production") or by chemical synthesis in solid- or liquid-phase plants such as flame reactors or in sol-gel-precipitation processes, the new process for the first time is based on particle synthesis in shock waves within a supersonic gas flow as energy supply as well as reaction medium.

Before the project was started in January 2006, the researchers involved only could investigate partial process reactions of particle synthesis. Since the activation of the pilot reactor earlier in 2009, they have been able to examine simulations and theoretical considerations from beginning to end.

Successful project realisation through competence and team spirit

"We've reached the designated target of the project within less than three years", summarised project supervisor Professor Herbert Olivier from Aachen University of Technology. "Now we can synthesise particle batches of about three kilograms per hour to investigate further applications of the particles!" The speed of project execution currently has led to more than twenty publications already in preparation – and the pipeline is well-stocked for project residual term of another 1,5 years.

The project was financed by the German Research foundation with roughly 9 million euros as a public-private research project. Evonik Industries, as operator of the mini-plant, thereby acts at the same level as the participating research groups. Development and construction of the supersonic reactor was totally new ground for all partners of the project – participants drove to the limits of physics and material science. Competence and knowledge at the one end and an extraordinary team spirit at the other were the keys to a success that, as reviewers suggested, may be followed up by another project funding. The project gained special interest in nearby drug development and production facilities.

Due to the efficient project management of the Wolfgang Industrial Park as site operator and the knowledge of its engineering subsidiary staff, the GiP pilot reactor is a lighthouse project for settlement in the productive environment of an industrial park.

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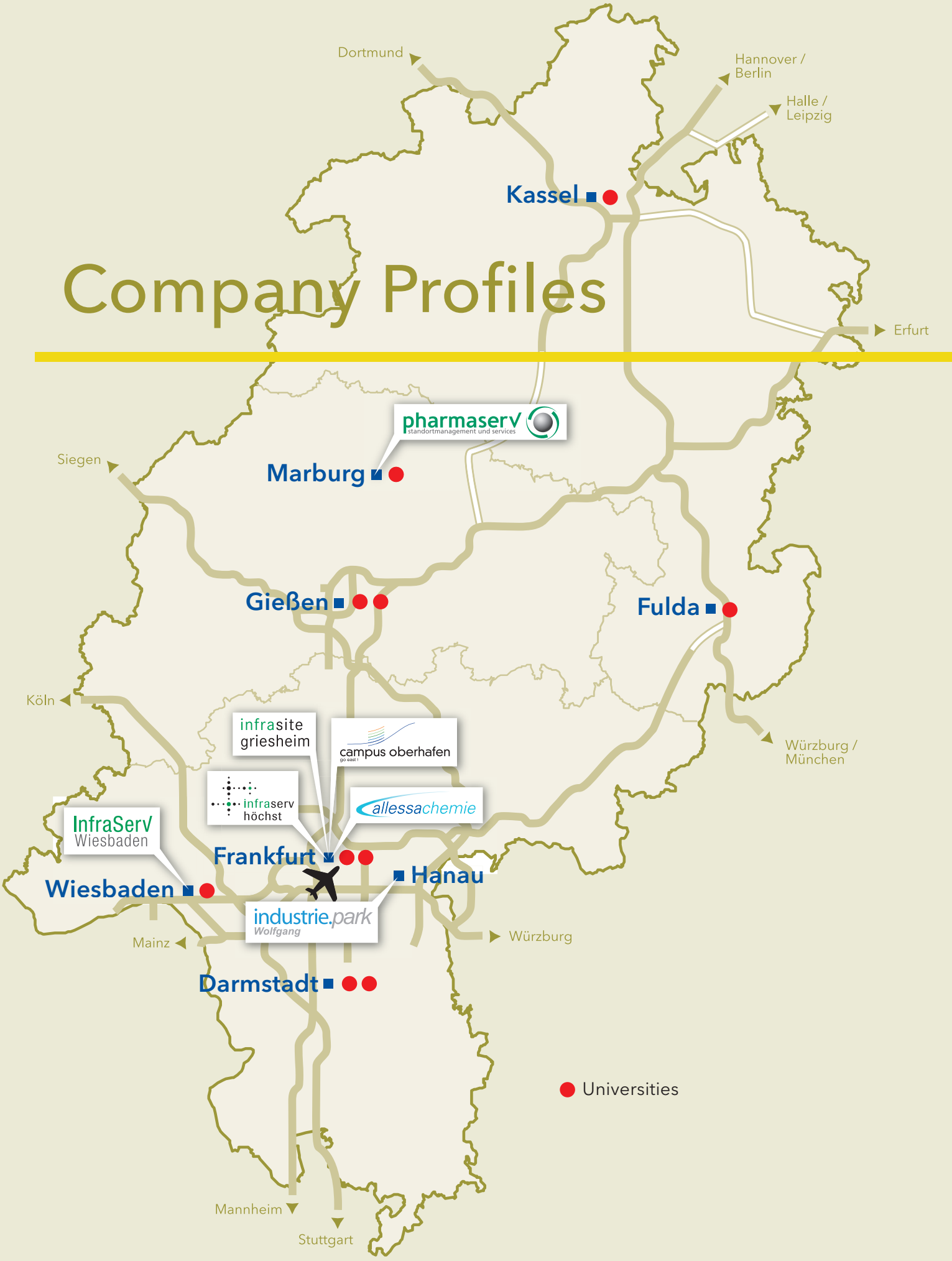
Company Profiles



AllessaChemie GmbH, Frankfurt-Fechenheim and Offenbach

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Arpad Molnar

Area for chemical and / or biological laboratories	
Overall laboratory area (m²)	10,905 m²
Laboratory area for rent (m²)	3,345 m²
Year of construction / renovation	1970–2000
Minimum size of rentable lab (m²)	250 m²
Maximum size of lab (m²)	2200 m²
Rent per m²	8 to 15 Euro
Additional service charges	–
Optional: Special services available	–

Area for chemical and / or biological production	
Overall production area (m²)	63,000 m²
Production area for rent (m²)	2,000 m²

Open space suitable for newly constructed buildings	
Overall open space (m²)	430,000 m²
Open space available for rent (m²)	30,000 m²
Minimum size of parcel (m²)	500 m²
Maximum size of parcel (m²)	26,000 m²

Area for offices	
Overall office area (m²)	11,130 m²
Office area for rent (m²)	1,000 m²
Year of construction / renovation	1970–2000
Minimum size of rentable office (m²)	200 m²
Maximum office size (m²)	1,000 m²
Rent per m²	5 to10 Euro
Additional service charges	–
Optional: Special services available	–

Infrastructure	
Next universities	10 km
Next research institutes (Fraunhofer, Max-Planck …)	10 km
Autobahn / Train station / Airport / Port	5 km / 10 km / 20 km / 1 km
Access to special supply or disposal pipelines	no

As a manufacturer of organic intermediates and specialty chemicals for industrial customers, AllessaChemie was founded in 2001 as a spin-off from the Swiss Clariant group. Besides contract manufacturing, services include development of synthesis processes from pilot to production scale (50 kg to 1 ton) with high flexibility through modular system setup.

Infrastructure

AllessaChemie operates the Frankfurt-Fechenheim and Offenbach sites. New investors will benefit from the entire infrastructure and comprehensive service of a chemical company. Companies located on both sites have direct access to raw materials on site and to the value chain of producers. Additionally, Infraserv Logistics GmbH provides a great storage plant for hazardous goods.

Services / Utilities

As operator, AllessaChemie supplies tenants with a range of additional services and utilities. Amongst these, investors will find materials logistics, analytical services, safety management and pollution control. An own lab for process optimisation is provided in addition to extensive process safety know-how. Furthermore, laboratory research and development can performed as well as further contract services like analysis for quality management purposes.

The operator has a good working relationship with the local public authorities and provides IT, human resources and central health and service management services. HR services include a training and further education centre, where mechanical and electrical control and measuring engineering workshops take place. Any training can be realised in line with customers' needs.

Research & Development

R & D facilities include mobile reactors of up to 1 m^3 as well as batch- and semibatch-processes. Different membrane units from Lab-scale with an active surface of 50 cm^2 to a pilot-scale with an active surface of 40 m^2 are provided and are suitable for high-purity operations.

campus oberhafen
go east !

Campus Oberhafen, Frankfurt

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www.campus-oberhafen.de, www.beos.net
Heike Henrich, Dr. Philipp Feldmann

Area for chemical and / or biological laboratories	
Overall laboratory area (m²)	6,100 m²
Laboratory area for rent (m²)	3,800 m²
Year of construction / renovation	Renovation in progress
Minimum size of rentable lab (m²)	500 m² incl. office space
Maximum size of lab (m²)	dependent on usage
Rent per m²	From 9 Euro net
Additional service charges	Service charge payment of 3 Euro plus VAT (19 %) for utilities, heating; extra charge for electricity
Optional: Special services available	Facility Management and 24h-Security-Service on site, Canteen

Area for chemical and / or biological production	
Overall production area (m²)	See laboratory space above, modifications possible
Production area for rent (m²)	See laboratory space above, modifications possible

Open space suitable for newly constructed buildings	
Overall open space (m²)	10,200 m²
Open space available for rent (m²)	10,200 m²
Minimum size of parcel (m²)	2,200 m²
Maximum size of parcel (m²)	8,000 m²

Area for offices	
Overall office area (m²)	22,100 m²
Office area for rent (m²)	12,900 m²
Year of construction / renovation	Renovation in progress
Minimum size of rentable office (m²)	350 m²
Maximum office size (m²)	Dependent on usage
Rent per m²	From 8 Euro net (basic)
Additional service charges	Service charge payment of 3 Euro plus VAT (19 %) for utilities, heating; extra charge for electricity
Optional: Special services available	Facility Management and 24h-Security-Service on site, Canteen

Infrastructure	
Next universities	9 km
Next research institutes (Fraunhofer, Max-Planck …)	6 km
Autobahn / Train station / Airport / Port	1 km / 7 km / 19 km / 1 km
Access to special supply or disposal pipelines	no

Regional features and special benefits

As a traditional site of Frankfurt's former biochemical industry, the Campus Oberhafen is a well established area at the Hanauer Landstraße qualified for different types of use such as laboratories and offices. Already in the 'twenties, it had been a centre of pharmaceutical research and production. Today, the location is a platform for a broad range of both national and international businesses. Notable tenants include Æterna Zentaris GmbH, Evonik Degussa GmbH, Adolf Würth, Morphisto GmbH, GIG-FM GmbH and GIS Infrasite GmbH.

Due to its location near the Hanauer Landstraße and Autobahn 661, its infrastructure, its safety standards with regard to a 24-hour on-site security service, as well as its optimal transport connection, it is ideal for different kinds of service companies. Attractive and flexible spaces from 500 m² in the Campus Oberhafen, reshaped according to prospective tenants' requirements, are found not only by resident companies with a life science background but also by other service-orientated firms. More than 10,000 m² of building site provide the Campus with a great deal of room for inspiration and with the potential for new ideas.

The suitable place for biotech and small-scale chemical production

For chemical, biotechnological or pharmaceutical companies, Campus Oberhafen provides a variety of laboratories for synthetic or analytic purposes. A portion of labs are equipped with cleanroom technology and laminar flow. Other labs provide steam sterilizers, lyophylizers, cold storage cells or fridges that include function monitoring. Exhaust hoods are also available as storage cabinets for hazardous goods. All laboratories supply air conditioning and are directly combinable with office space. The on-site facility management acts as laboratory operator in the regulatory field. All laboratory buildings are connected to a neutralisation plant and a fail-safe energy supply.

InfraServ
Wiesbaden

Kalle-Albert industrial park, Wiesbaden

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Michael Behling

Area for chemical and / or biological laboratories	
Overall laboratory area (m²)	7,000 m²
Laboratory area for rent (m²)	4,000 m²
Year of construction / renovation	ca. 1970
Minimum size of rentable lab (m²)	150 m²
Maximum size of lab (m²)	500 m² (stock)
Rent per m²	from 12.50 Euro
Additional service charges	yes
Optional: Special services available	yes

Area for chemical and / or biological production	
Overall production area (m²)	940,000 m²
Production area for rent (m²)	20,000 m²

Open space suitable for newly constructed buildings	
Overall open space (m²)	40,000 m²
Open space available for rent (m²)	15,000 m²
Minimum size of parcel (m²)	15,000 m²
Maximum size of parcel (m²)	15,000 m²

Area for offices	
Overall office area (m²)	110,000 m²
Office area for rent (m²)	2,000 m²
Year of construction / renovation	1934–1978
Minimum size of rentable office (m²)	300 m²
Maximum office size (m²)	700 m²
Rent per m²	from 9.50 Euro
Additional service charges	yes
Optional: Special services available	yes

Infrastructure	
Next universities	4 km
Next research institutes (Fraunhofer, Max-Planck …)	10 km
Autobahn / Train station / Airport / Port	3 km / 0.7 km / 28 km / Within the park
Access to special supply or disposal pipelines	yes

Specialised in mid-sised industries

After more than 140 years industrial history in chemical production at the Kalle-Albert site, the Industrial Park today has developed into a modern and performance-oriented chemical site. Located in Wiesbaden at the western edge of the Frankfurt / Rhine-Main region, Kalle-Albert industrial park is unique with regard to its core competences and its occupancy rates and especially with regard to its main focus on mid-sised industrial companies.

The 90 tenants of production, pilot and ready-to-use laboratory and office areas cover the whole range between small start-up companies of two persons and producing plants with some 800 co-workers. Businesses include chemical industries as well as biotechnology and companies provide laboratory and IT services and produce pharma-active agents, detergents or membranes for water purification.

Multiple services ...

Since 1997, InfraServ Wiesbaden has been the local operator of all services at Kalle-Albert industrial park which previously was a site merger of two independent companies and a subsidiary of the former Hoechst AG. Its service is its strength, since its is familiar to working for, and with, producing chemical industry. Among the services of the InfraServ Wiesbaden Group in the Kalle-Albert Industrial Park, customers will find power and environmental protection, real estate and security services, personnel and materials management, IT and SAP consulting by GES Systemhaus GmbH as well as engineering and workshops provided by the subsidiary InfraServ Wiesbaden Technik.

... and common infrastructure available

Common infrastructure is accessible for all users located within the chemical park, which provides a broad energy supply that includes power, steam, cold and cooling media, compressed air and nitrogen as well as a biological sewage plant. Forty percent of energy supply is gained by regenerative energy.

Infrastructure is complemented by railroad tracks, an own port at the Rhine river and proximity to science and research institutes in the Rhine-Main area. A further advantage is the accessibility to motorways (within three minutes), the Frankfurt airport (twenty minutes) or long-distance trains (Mainz and Wiesbaden station in ten minutes, Frankfurt station in twenty minutes).

infraserv höchst

Industrial Park Höchst

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Michael Müller

Area for chemical and / or biological laboratories	
Overall laboratory area (m²)	no entry
Laboratory area for rent (m²)	3,000 m²
Year of construction / renovation	various
Minimum size of rentable lab (m²)	100 m²
Maximum size of lab (m²)	3,000 m²
Rent per m²	negotiable
Additional service charges	typical for industrial park
Optional: Special services available	yes

Area for chemical and / or biological production	
Overall production area (m²)	4,600,000 m²
Production area for rent (m²)	500,000 m²

Open space suitable for newly constructed buildings	
Overall open space (m²)	4,600,000 m²
Open space available for rent (m²)	500,000 m²
Minimum size of parcel (m²)	1,000 m²
Maximum size of parcel (m²)	100,000 m²

Area for offices	
Overall office area (m²)	no entry
Office area for rent (m²)	3,000 m²
Year of construction / renovation	variable
Minimum size of rentable office (m²)	30 m²
Maximum office size (m²)	2,500 m²
Rent per m²	negotiable
Additional service charges	typical for industrial park
Optional: Special services available	yes

Infrastructure	
Next universities	5 km
Next research institutes (Fraunhofer, Max-Planck …)	5 km
Autobahn / Train station / Airport / Port	1 km / own station / 3 km / Within the park
Access to special supply or disposal pipelines	Pipeline network within park with all typical utilities

The site in the centre of Europe

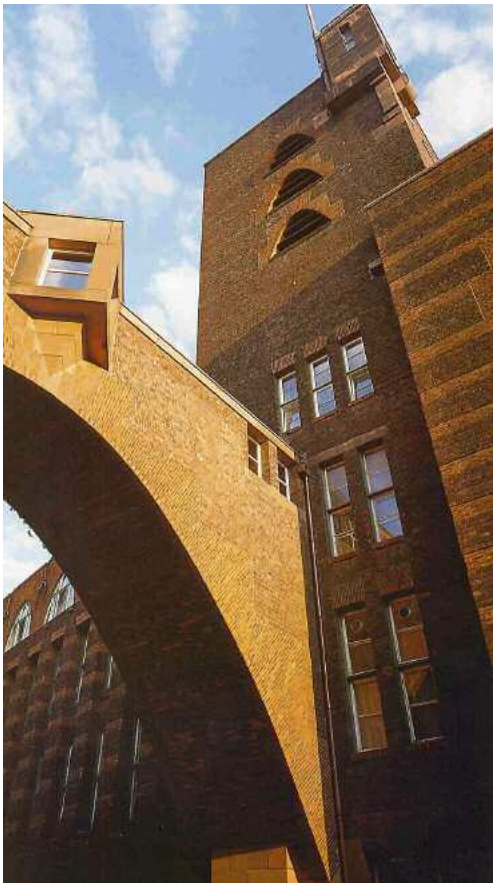
Höchst industrial park is an innovative chemical and pharmaceutical site in Europe's heartland. The site, with its highly evolved infrastructure, is an ideal environment for research and manufacturing companies. Its attractiveness is enhanced by its perfect access to international transit routes and its proximity to key supplier, sales and financial markets. Another benefit is the dense regional network of world-class research institutes and universities. More than 90 companies with approximately 22,000 employees have found the perfect home for their business in a park measuring more than four square kilometres. From international corporations to creative service providers, the companies in the Höchst flourish in this strong business and science environment.

From tradition to modernity

The Höchst industrial park was built on the foundations of the Hoechst AG parent plant. Infraserv GmbH & Co. Höchst KG was established in 1998, when Hoechst AG's individual operations were transferred to independent companies. Its expansion shows no signs of stopping: 4.3 billion euros were invested in the Park since 2000. This shows that Höchst industrial park is an attractive site for companies in the chemicals, pharmaceuticals and process industries. Fifty hectares of fully pre-developed land remain available for new facilities.

Infraserv Höchst: Site operator in Frankfurt-Höchst

Infraserv GmbH & Co. Höchst KG operates the Industriepark Höchst. With its proven know-how and maximum reliability, Infraserv enables its customers to focus on their core business. This boosts their bottom line dramatically. As a leading site operator, the company offers its customers everything they need to make their business successful: services and resources include fitting laboratories, educated personnel and staff health services as well as the provision extensive logistics services and waste disposal.



infrasite griesheim

Industrial Park Griesheim, Frankfurt

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Rainer Gutweiler

Area for chemical and / or biological laboratories	
Overall laboratory area (m²)	ca. 2,200 m²
Laboratory area for rent (m²)	130 m²
Year of construction / renovation	Various, area for rent: 1985
Minimum size of rentable lab (m²)	21 m²
Maximum size of lab (m²)	70 m²
Rent per m²	18 Euro / m²
Additional service charges	none
Optional: Special services available	no entry

Area for chemical and / or biological production	
Overall production area (m²)	300,000 m²
Production area for rent (m²)	1,000 m²

Open space suitable for newly constructed buildings	
Overall open space (m²)	65,000 m²
Open space available for rent (m²)	30,000 m²
Minimum size of parcel (m²)	1,000 m²
Maximum size of parcel (m²)	15,000 m²

Area for offices	
Overall office area (m²)	2,600 m²
Office area for rent (m²)	250 m²
Year of construction / renovation	Various, area for rent: 2001
Minimum size of rentable office (m²)	25 m²
Maximum office size (m²)	56 m²
Rent per m²	16,50 Euro / m²
Additional service charges	no entry
Optional: Special services available	Canteen at site

Infrastructure	
Next universities	10 km
Next research institutes (Fraunhofer, Max-Planck …)	10 km
Autobahn / Train station / Airport / Port	3 km / 2 km / 9 km / Within the park
Access to special supply or disposal pipelines	Nitrogen, Hydrogen, Natural Gas

Quality at a Fair Price

One-and-a-half centuries of production, research and development in the chemical and related industries – this is the shortest way to describe the Griesheim site. Today, more than 30 companies from different chemical fields are located at the industrial park and emploly some 1,400 persons. The location in the centre of the Frankfurt / Rhine-Main Region assures companies access to an entire package of possibilities and advantages. WeylChem, Allessa-Chemie or Bilfinger Berger Industrial Services are widely known as prominent companies at the site.

Different zones for different applications

Due to its direct connection to the Main river and to various residential and industrial areas surrounding the industrial park, three major zones are separated within the site:

- Within the core zone of the industrial park, chemical and related industrial activities take place. Access control to this zone is secured by the operator's security services.
- The western part of the park acts as an open zone for office buildings and storehouses.
- The east zone houses an open commercial area for purposes of industries, crafts and services.
- Last but not least, the northern part of the industrial park provides a parking lot for local staff as well as 'Park & Ride' facilities including a shuttle service to Frankfurt airport.

Full service included

Griesheim industrial park provides all necessary services for the installation of plants for industrial processes and production, for which stringent safety standards are obligatory. Additional buildings and open spaces include office, warehousing and other purposes. Site services include waste management, security services, supply of compressed air, nitrogen and water, constructional engineering, social facilities and medical services as well as IT-Services and networks.

Since September 2009, Griesheim industrial park is run by Infrasite Griesheim, a subsidiary of Infraserv, the nearby operator of Industriepark Höchst.

industrie.park Wolfgang

Wolfgang Industrial Park, Hanau

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Area for chemical and / or biological laboratories	
Overall laboratory area (m²)	13,846 m²
Laboratory area for rent (m²)	741 m²
Year of construction / renovation	2000 – 2006
Minimum size of rentable lab (m²)	50 m²
Maximum size of lab (m²)	100 m²
Rent per m²	no entry
Additional service charges	no entry
Optional: Special services available	no entry

Area for chemical and / or biological production	
Overall production area (m²)	24,000 m²
Production area for rent (m²)	1,000 m²

Open space suitable for newly constructed buildings	
Overall open space (m²)	49,700 m²
Open space available for rent (m²)	1,800 m²
Minimum size of parcel (m²)	as needed
Maximum size of parcel (m²)	34,000 m²

Area for offices	
Overall office area (m²)	49,700 m²
Office area for rent (m²)	on request
Year of construction / renovation	1985 – 2009
Minimum size of rentable office (m²)	15 m²
Maximum office size (m²)	30 m²
Rent per m²	no entry
Additional service charges	no entry
Optional: Special services available	no entry

Infrastructure	
Next universities	22 km
Next research institutes (Fraunhofer, Max-Planck …)	10 km
Autobahn / Train station / Airport / Port	2 km / 4 km / 35 km / 5 km
Access to special supply or disposal pipelines	no entry

Wolfgang Industrial Park is an innovative research hub and production centre for materials technology, specialty chemicals and pharmaceuticals. About 4,500 employees at the industrial park mainly work in production and R&D of future-oriented areas such as photovoltaics, fuel cells and the synthesis of active pharmaceutical ingredients for the treatment of diabetes and AIDS.

A competent partner for customers

As site operator, Industriepark Wolfgang (IPW) GmbH provides "Services for Innovation" for companies located at the Wolfgang site as well as for external customers. As a one-stop shop, IPW GmbH saves customers the time-consuming and expensive work involved in coordinating services sourced from a variety of different suppliers. To support its customers' business activities, IPW GmbH provides a range of services tailored to the needs of R&D and pilot production.

Production infrastructure and additional services

IPW GmbH is also a reliable partner for the provision of infrastructure for production facilities at the industrial park. Low-cost, on-site utilities are a key factor in the success of this site. IPW GmbH therefore operates facilities to generate steam for industrial purposes and heat by using a mixture of natural gas, heating oil and lignite dust. It recently started up a new steam generator fuelled by lignite dust. This closed system has over 90 percent efficiency and is based on an almost completely new technology for industrial boilers rated less than 20 MW. This makes IPW a pioneer within the Evonik Group in the operation of facilities of this type, underscoring its commitment to innovative technologies.

The Technology Service Centre is a valued partner for process technology and equipment that help translate ideas into products. Staff at this Service Centre design and build the necessary technical appliances – from miniplants through pilot facilities to special installations – in close cooperation with customers at the industrial park and beyond. In addition, the Technology Service Centre has a validated testing and calibration laboratory. The range of technical and scientific support services offered by IPW GmbH are unique in the Rhine-Main region and include glass blowing, a scientific library, a high-pressure pilot plant and a pool of trained R&D staff.

pharmaserv
standortmanagement und services

Behringwerke Marburg

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Andreas Wilhelm Neuhaus

Area for chemical and / or biological laboratories	
Overall laboratory area (m²)	20,000 m²
Laboratory area for rent (m²)	3,650 m²
Year of construction / renovation	1960 – 2009
Minimum size of rentable lab (m²)	not restricted
Maximum size of lab (m²)	not restricted
Rent per m²	dependent on size, equipment, duration and investments needed
Additional service charges	dependent on building and individual needs
Optional: Special services available	logistics, technical services e. g.

Area for chemical and / or biological production	
Overall production area (m²)	47,000 m²
Production area for rent (m²)	8,100 m²

Open space suitable for newly constructed buildings	
Overall open space (m²)	800 m²
Open space available for rent (m²)	not available at the moment
Minimum size of parcel (m²)	50 m²
Maximum size of parcel (m²)	215 m²

Area for offices	
Overall office area (m²)	42,200 m²
Office area for rent (m²)	3,295 m²
Year of construction / renovation	1960 – 2009
Minimum size of rentable office (m²)	20 m²
Maximum office size (m²)	50 m²
Rent per m²	dependent on size, equipment, duration and investments needed
Additional service charges	dependent on building and individual needs
Optional: Special services available	logistics, technical services e. g.

Infrastructure	
Next universities	2,5 km (Univ. Marburg), 40 km (Univ. Gießen, Univ. of Appl. Sci. Gießen-Friedberg)
Next research institutes (Fraunhofer, Max-Planck …)	3 km (Robert-Koch-Institute Marburg)
Autobahn / Train station / Airport / Port	3 km / 3 km / 100 km / no entry
Access to special supply or disposal pipelines	no entry

Creating value for Biotech

"Time to market" dominates the global life science business, and requires close interactions between the pharmaceutical, chemical and biotechnological industries. The ideal environment for a company therefore that provides quick and easy access to business partners and auxiliary services. Reduced administrative tasks and time- and cost-efficient operations offer even smaller companies their own production.

The industrial park Behringwerke Marburg covers all these issues on the spot. With approximately 4,000 employees in 21 companies, it is more a biotech centre than a classical "chemical park". The location is attractive for pharmaceutical, medical, bio- and nanotechnology enterprises, which can manage the complete biotech value chain from research and development to biomanufacturing and registration of pharmaceuticals. The park offers vital access to industry networks as well as a close link to scientific research at the local University and regional research centres. Commonly known park tenants include globally active Pharma producers as well as many smaller companies as science and business partners.

Pharmaserv provides the platform for success

The site operator Pharmaserv GmbH specialises in support for biotechnology and pharmaceutical production. By complete management of 115 rental units including all housing and facility services, Pharmaserv creates a worry-free environment that enables companies to concentrate on their main business. Additionally, Pharmaserv provides broad range of standard and custom-tailored services in almost all areas of site management – from technology to health services. Long standing experience and specific pharmaceutical expertise ensure that all services meet the highest quality demands of GMP- and FDA-relevant regulations.

Rooted in tradition, primed for the future

A century after its foundation, the industrial park Behringwerke in Marburg belongs to one of the most powerful biotechnology locations worldwide. Continuing its tradition as a successful biopharmaceutical location, there is still room for growth: 7 ha free space can be occupied by new tenants. The site provides the ideal environment for successful and competitive life science companies.

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