



# Chemical Parks in Germany



Invest in economically attractive locations  
—at the hub of Europe's markets—



There are many good reasons to invest in a chemical park in Germany:

- Chemical parks provide the platform for the success of Germany's chemical industry
- The chemical park concept is innovative and unmatched anywhere else in the world
- Investors find optimum economic conditions in chemical parks
- Chemical park operators offer investors a comprehensive range of services
- The chemical park concept offers investors individual solutions for their business models

- I. Germany—the Investment Location
- II. The Chemical Industry in Germany
- III. Chemical Parks
- IV. Successful Examples
- V. Contact

Germany is the geographical and economic center of Europe

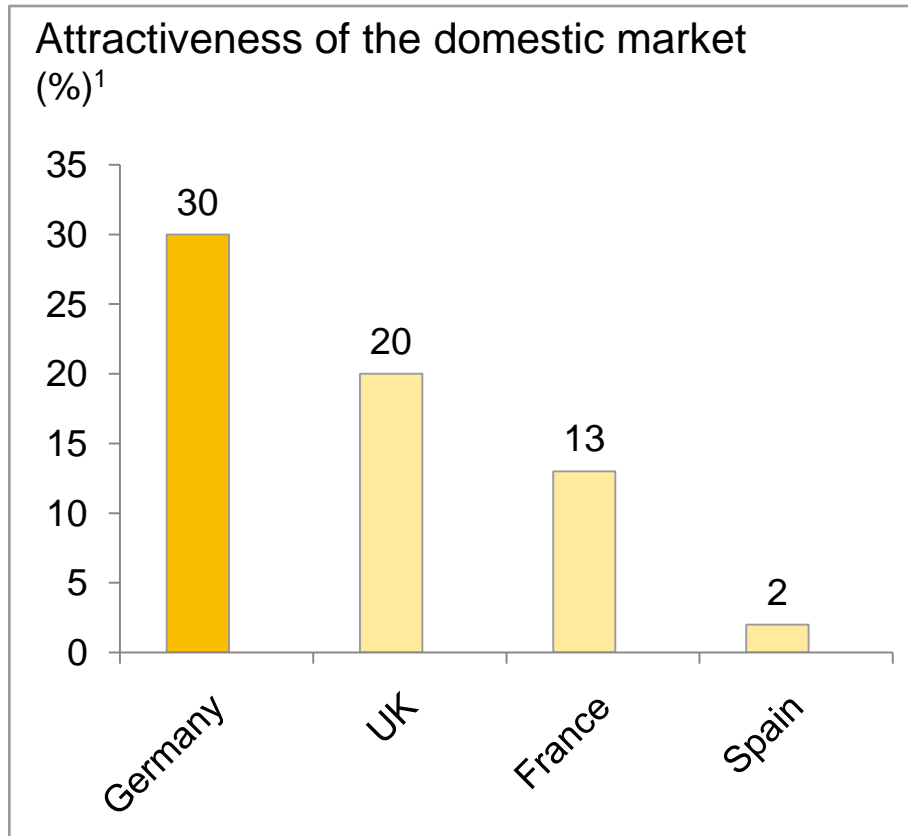


	GDP 2006 (in € billion)	Share in global GDP (%)	Population 2006 (million)
World	37,241	100	6,602
EU 27	11,516	31	493
Germany	2,307	6	82
USA	10,568	28	301
Japan	3,359	9	127

GDP - Gross domestic product

Source: Eurostat, United States Chamber of Commerce, EcoWin, 2006

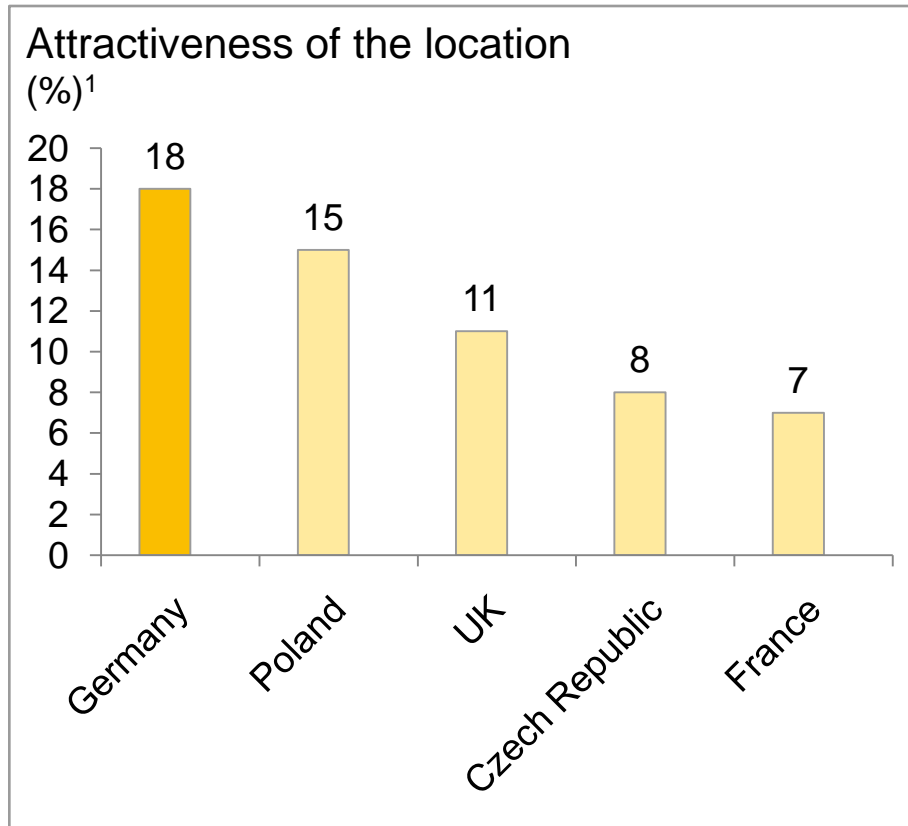
## Germany is the most attractive domestic market in Europe



- Germany has Europe's largest gross domestic product (GDP) in Europe
- Germany is the largest sales market in Europe
- Germany has the highest population in Europe

<sup>1</sup>) Respondents could give multiple answers  
Source: Ernst & Young, 2006

## Germany is the top location for investments in Europe



- Germany is Europe's leading investment

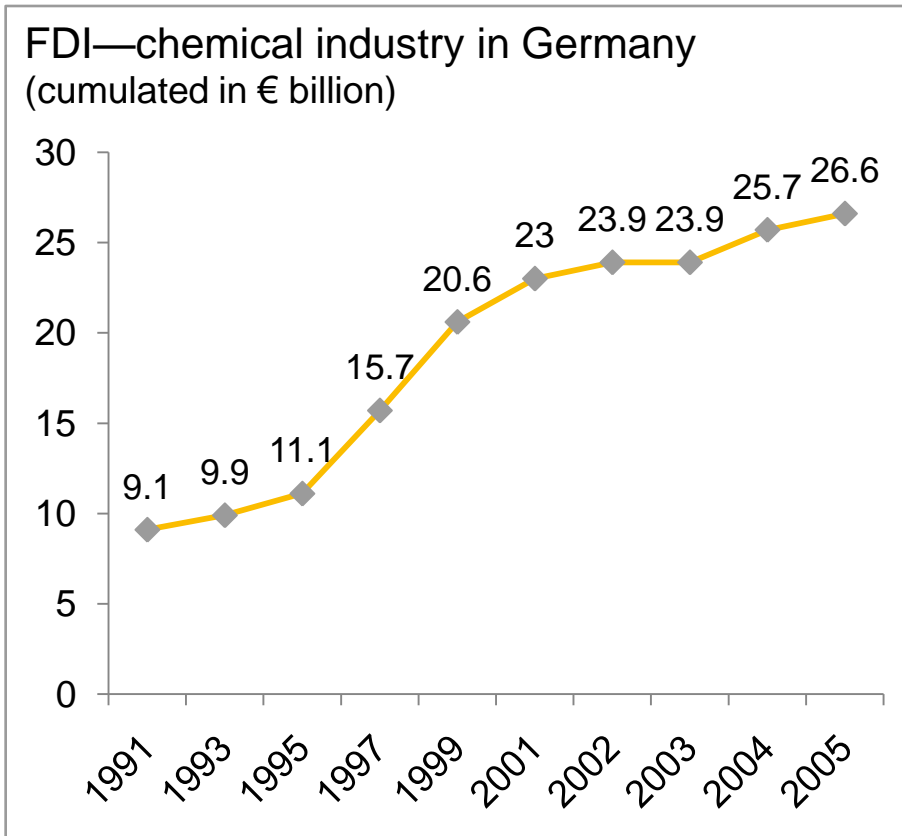
### A recent study proves:

- Germany is the main destination for future and planned investment projects in Europe
- The number of foreign companies in Germany is growing

More than 350 foreign chemical companies with sales of more than € 53 billion and almost 140,000 employees are active in Germany.

<sup>1</sup>) Respondents could give multiple answers  
Source: Ernst & Young, 2006, 2007; VCI, 2006

Foreign direct investment (FDI) in Germany's chemical industry has been increasing for many years



- Foreign companies have continuously expanded their capacities in Germany

Foreign direct investment in the German chemical industry has tripled to € 26.6 billion over the last 15 years.

I. Germany—the Investment Location

II. The Chemical Industry in Germany

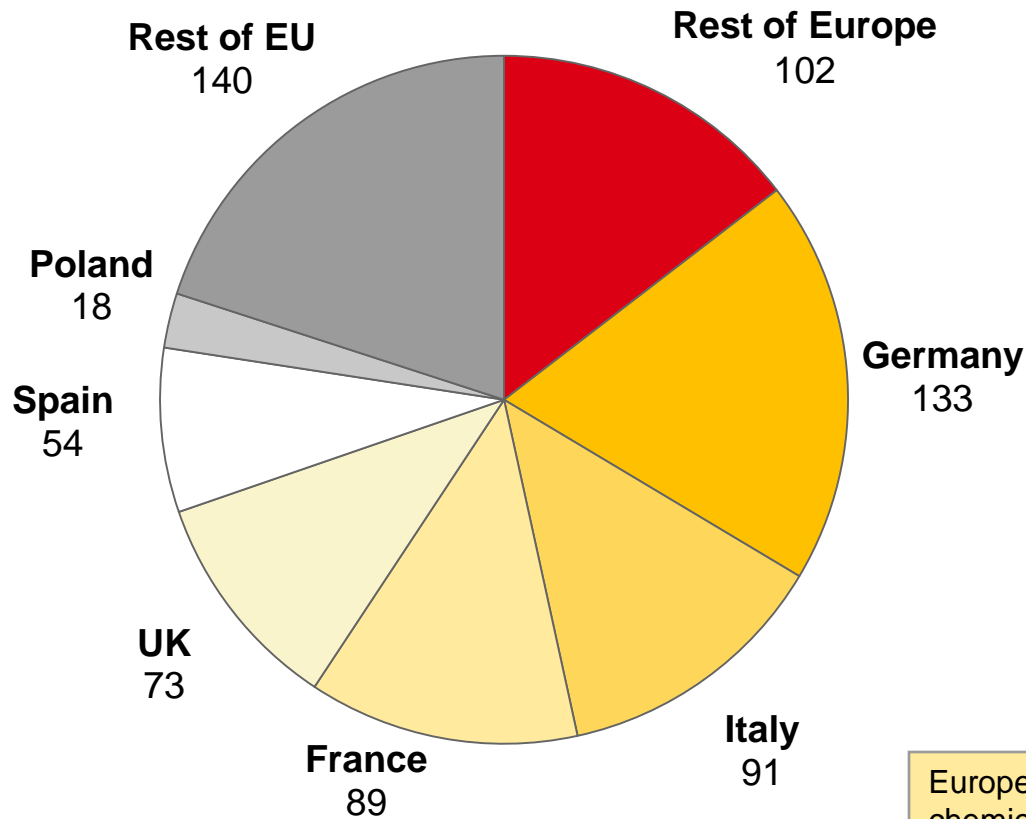
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Germany is the most important sales market for chemicals in Europe

Consumption of chemicals in Europe  
(2006, in € billion)



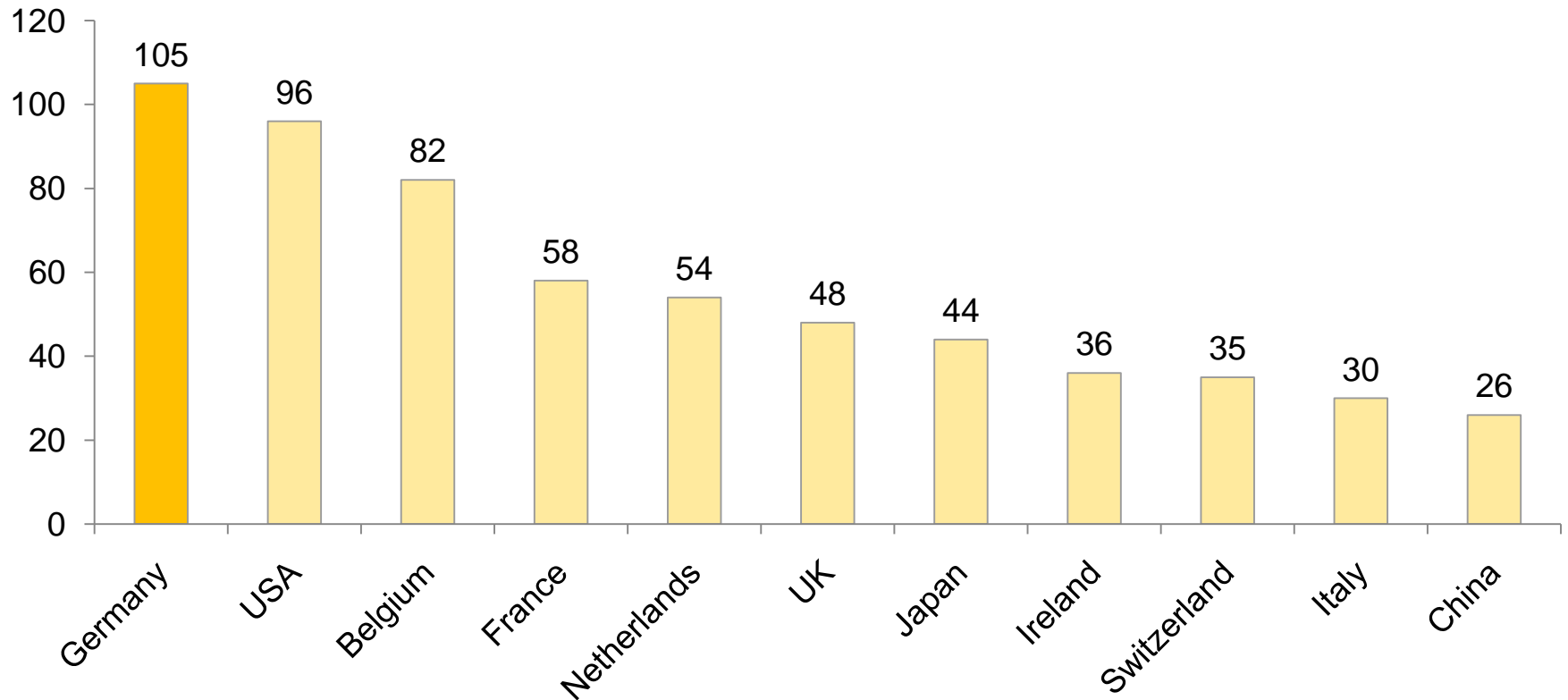
The German chemical industry has maintained a leading role in Europe for many years

	1995	2000	2005	2006	Share in the EU % in 2006	Ranking in the EU in 2006
Sales (in € billion)	112.3	135.0	152.8	162.2	24.6	1
Investment (in € billion)	5.8	6.8	5.4	5.7	28.9 (2005)	1
Exports (in € billion)	51.8	76.6	104.7	119.6	22.2	1
R&D expenditure (in € billion)	5.3	7.1	8.4	8.9	26.2 (2004)	1

Source: VCI, 2006

The German chemical industry is the world champion in exports

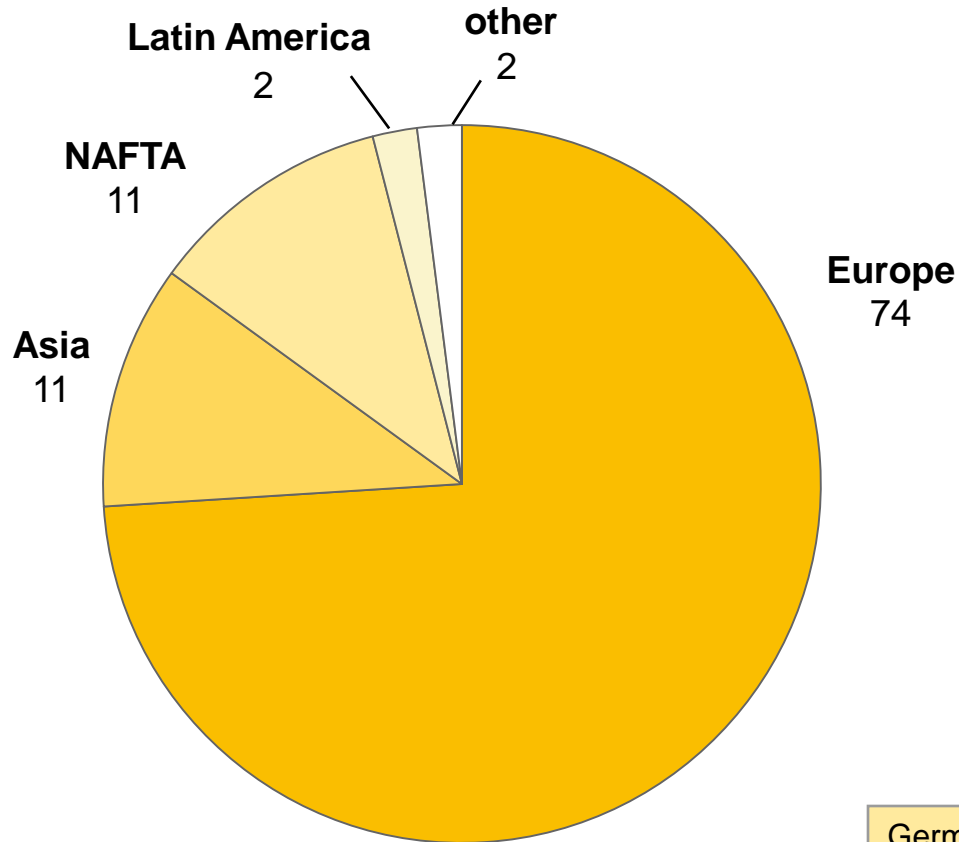
Chemical exports in 2005 by country  
(in € billion)



Source: CEFIC, Global Insight, VCI, 2006

Europe is the most important sale market for the German chemical industry

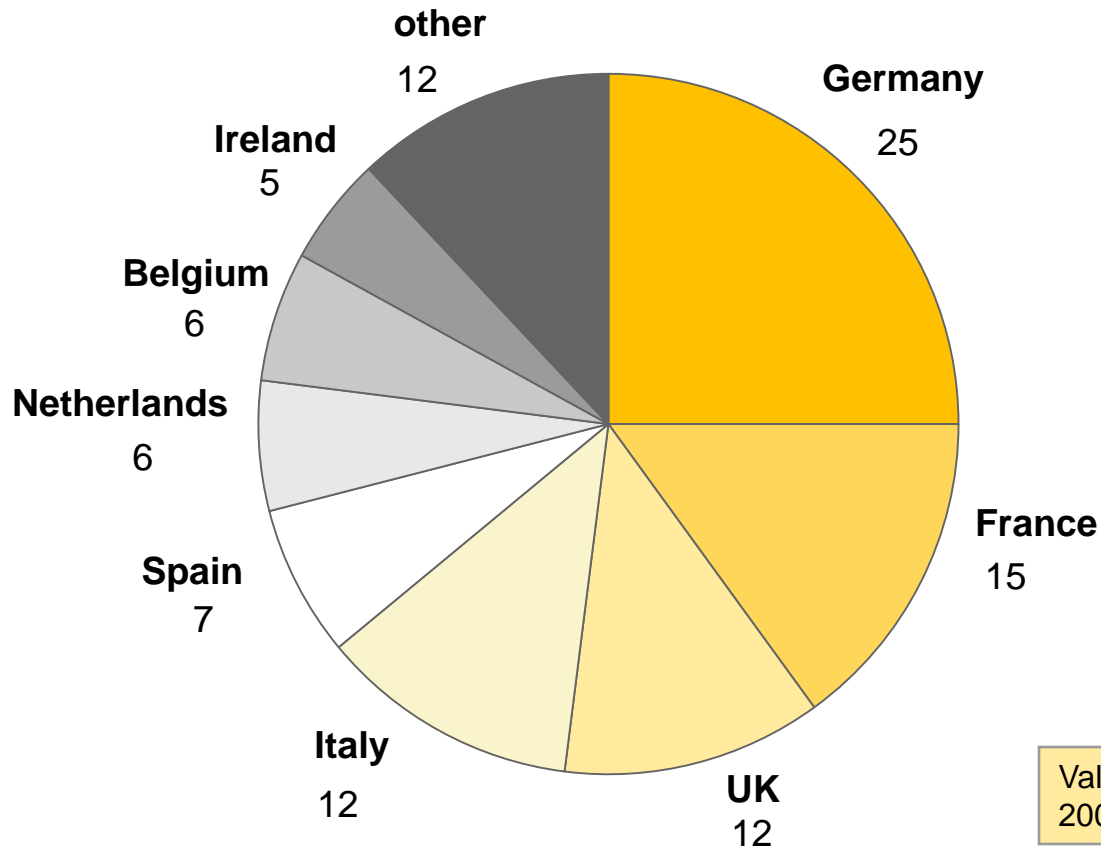
German chemical exports  
(2006, %)



German chemical exports in  
2006: € 119.6 billion

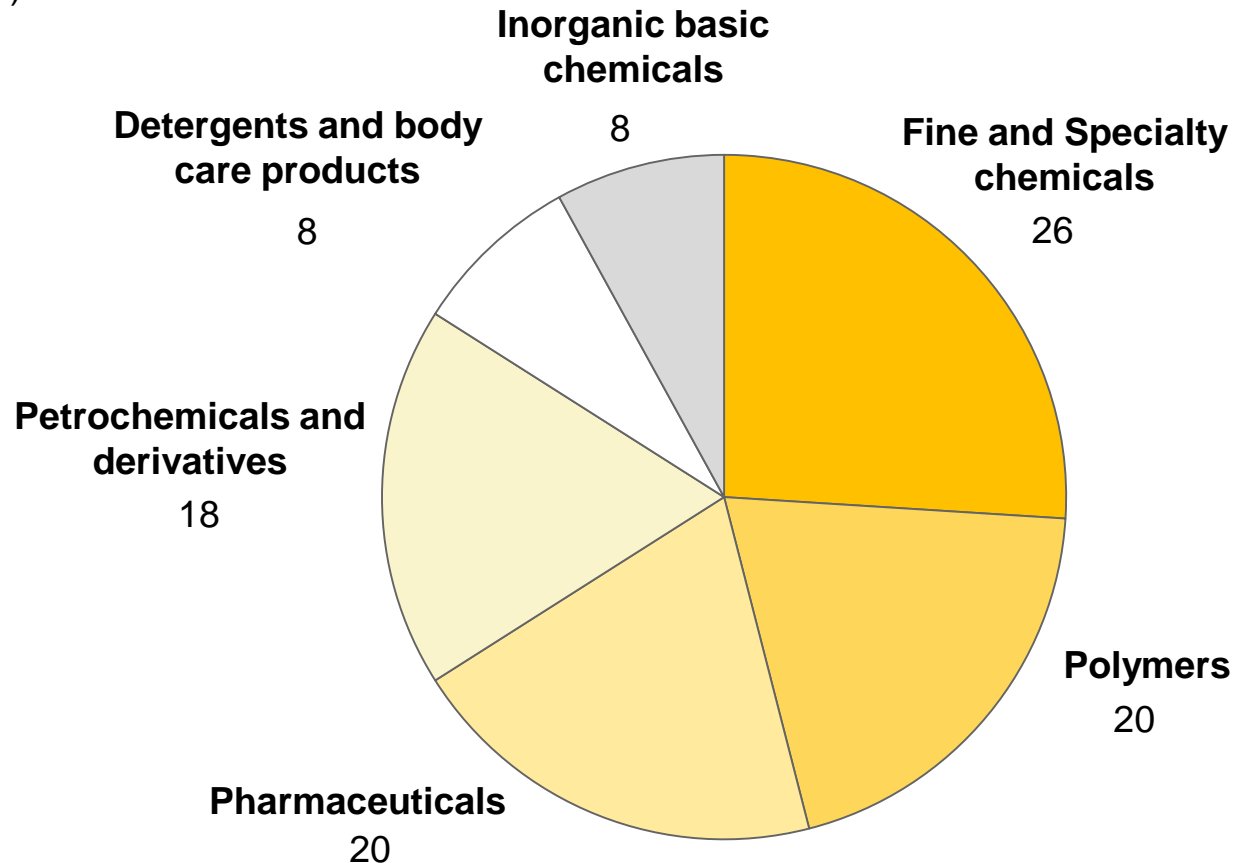
Germany is the biggest producer of chemicals in Europe

A quarter of all chemicals produced in Europe came from Germany  
(2006, %)



Innovative products make up more than 50% of chemical production in Germany

Distribution of production according to chemical product groups  
(2006, %)



Source: German Federal Statistical Office, 2007

## Germany has the best workforce in Europe

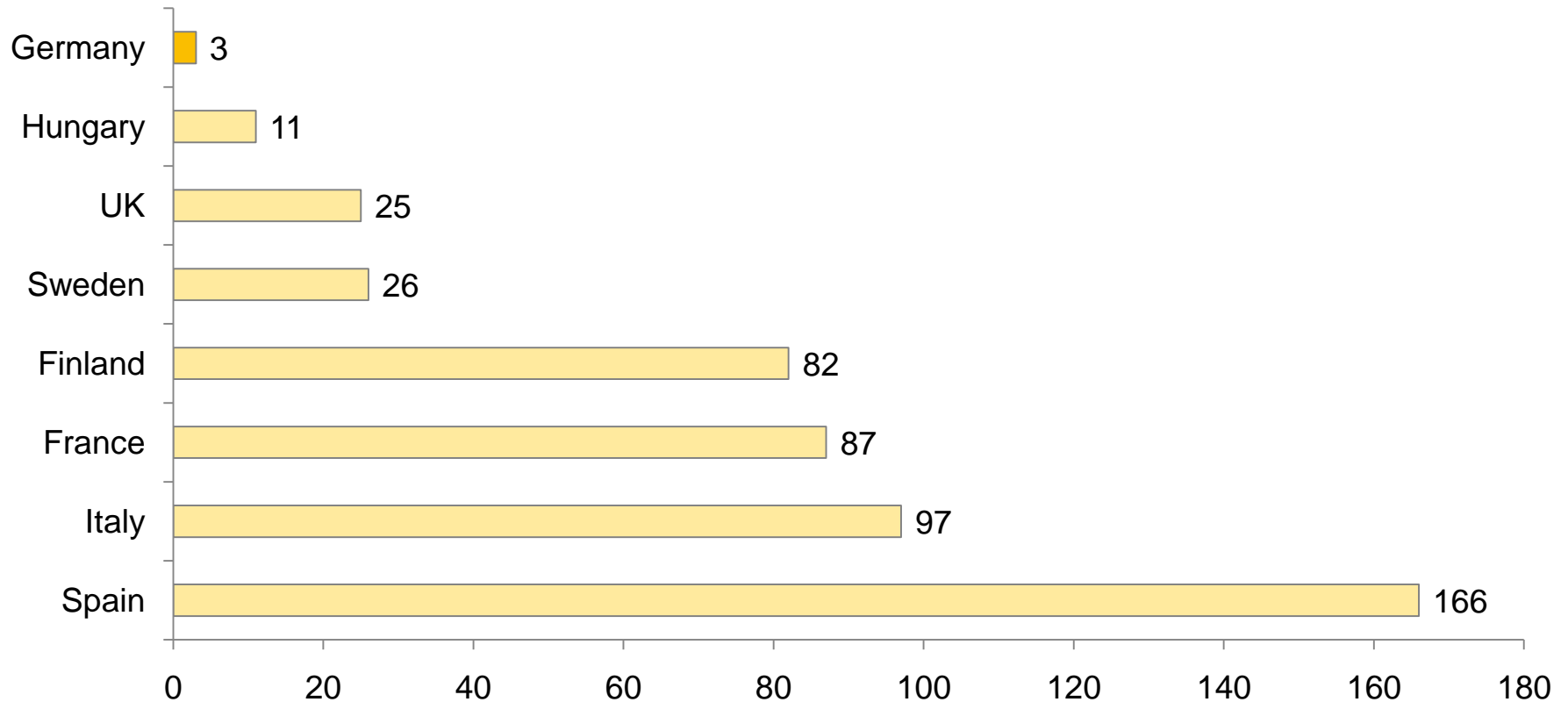


- Germany has the highest level of employee qualification in Europe
- Advanced training and employee qualification are important success factors for the companies operating in Germany
- Stable social partnership
  - Employees identify with their companies to a high extent
  - Agreement-oriented partnership between companies and trade unions
- High level of productivity with committed employees

<sup>1)</sup> Respondents could give multiple answers  
Source: Ernst & Young, 2006

## Lowest number of strikes in Europe

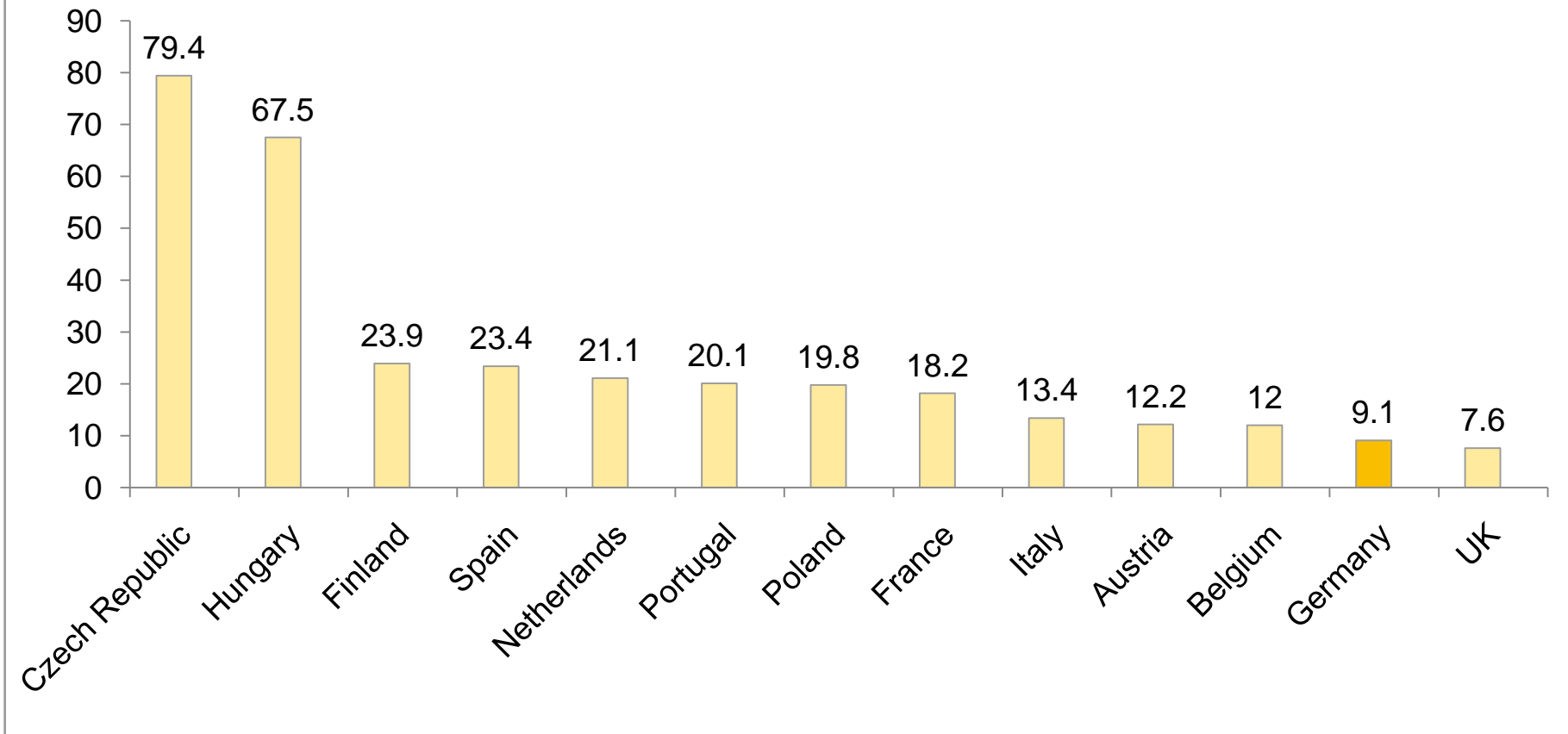
Days lost to strikes (annual average 2000–2005, per 1000 employees)



Source: Eurostat, Reuters EcoWin, Invest in Germany, 2007

In a comparison with other European countries, Germany has stable labor costs

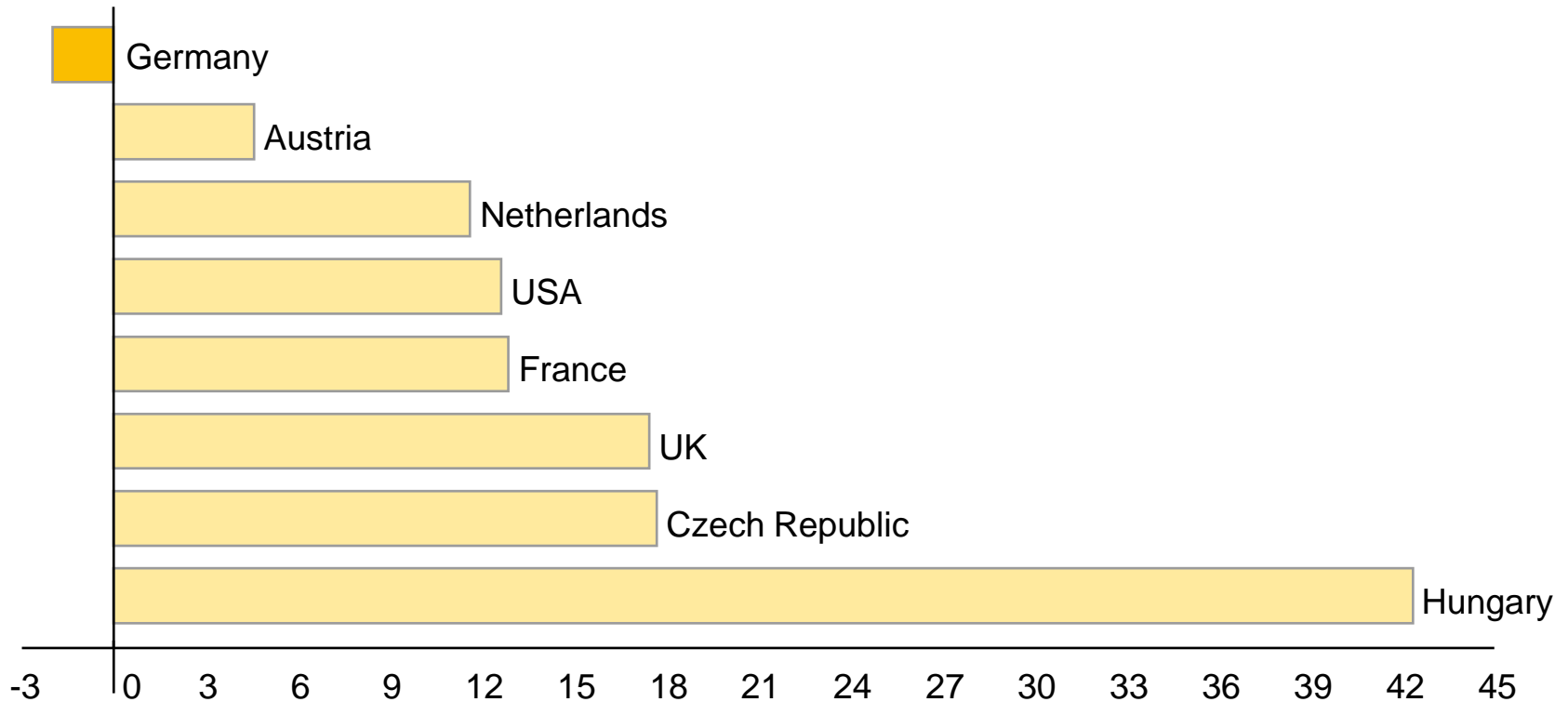
Changes in labor costs in the chemical industry  
(2000 – 2005, %)



Source: BAVC, 2007

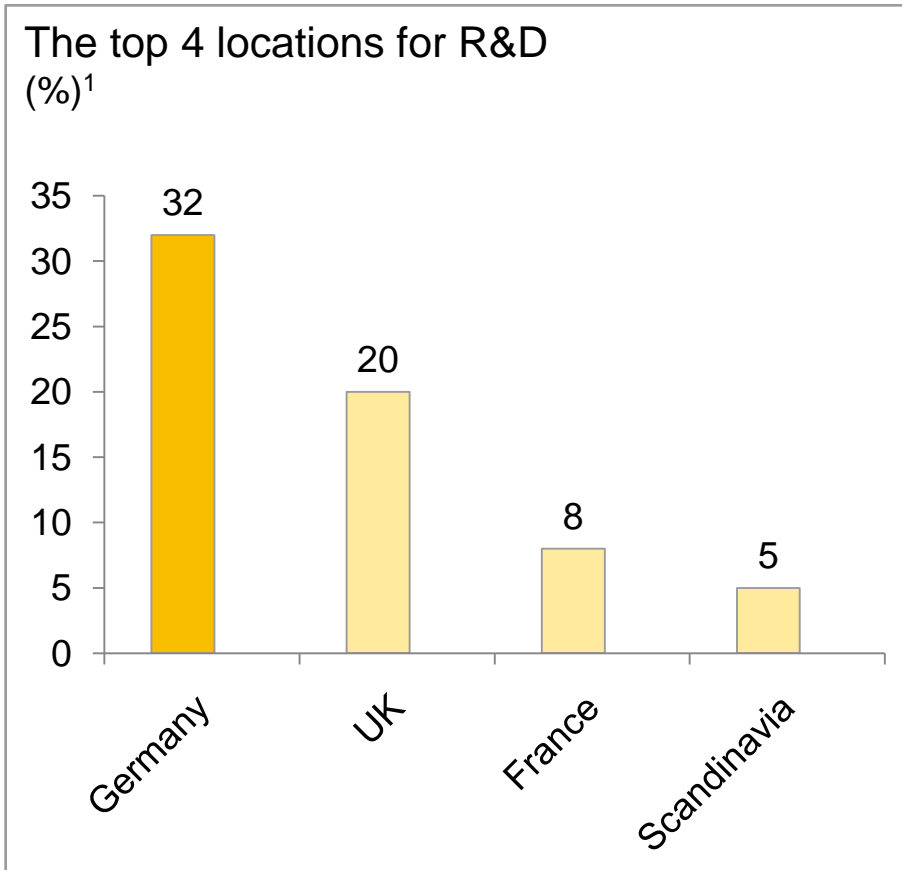
## Falling unit labor costs increase the competitiveness of companies in Germany

Changes in unit labor costs  
(Total economy 2000-2006, %)



Source: OECD, Reuters EcoWin, Invest in Germany, 2007

## German universities and research facilities form an outstanding basis for innovation



- Germany occupies first place among the leading locations for research and development
- The ability to innovate is one of Germany's main strengths as an investment location
- Excellent source of employees for the chemical industry
- 44% of companies in the chemical industry work together with universities on joint research projects

<sup>1)</sup> Respondents could give multiple answers

Source: Ernst & Young, 2006; Federal Ministry of Education and Research BMBF, 2006; Invest in Germany, 2006

Nearby university training strengthens research and development for the chemical industry and its applications



- **58 universities** to train young scientists for the chemical industry
- Including:
  - 18 universities offering biochemistry
  - 15 universities offering food chemistry
- **24 universities of applied science** offering chemistry

The intensive exchange between universities and companies ensures that German companies are able to hire top talents in science and engineering.

Source: GDCh German Chemical Society, 2007

## Nearby non-university research and development supports the chemical industry and its applications



### 68 non-university R&D facilities for the chemical industry

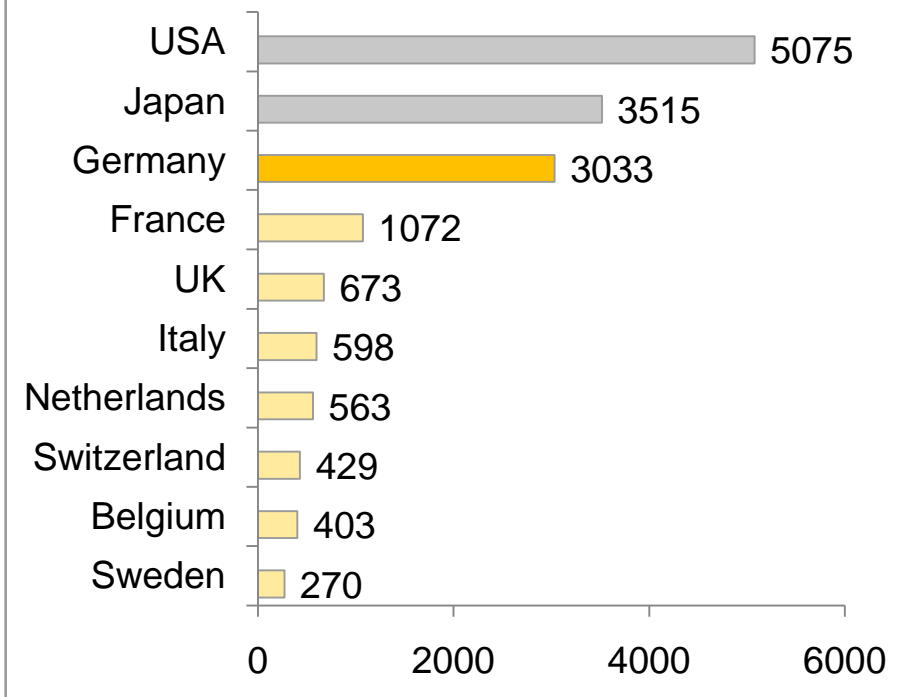
- 15 Institutes of the Max-Planck Society (MPG)
- 19 Institutes of the Fraunhofer Gesellschaft (FhG)
- 7 Institutes of the Helmholtz Association of German Research Centres (HGF)
- 11 Institutes of the Leibniz Association (WGL)
- 16 Federal and national R&D institutes and the Leopoldina – German Academy for natural scientists

Germany has a range of universities, R&D facilities, and companies that is among the leaders in the world.

Source: Federal Ministry of Education and Research BMBF, 2006;  
Invest in Germany

## Germany is the top location for quality in research and development

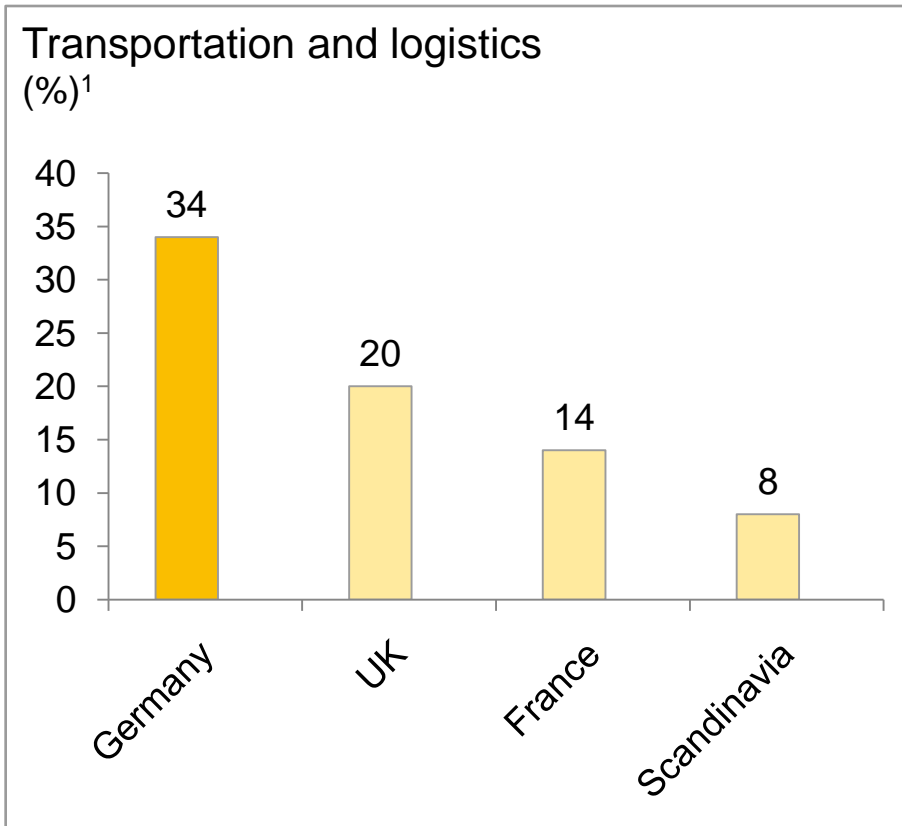
European patent registrations, chemistry <sup>1)</sup>  
(2006, absolute figures)



- The number of patents underlines the success in research and development
- Within Europe Germany is at the top of the list for patent registrations—proof that Germany is the top location for innovations

<sup>1)</sup> Chemistry and Polymers

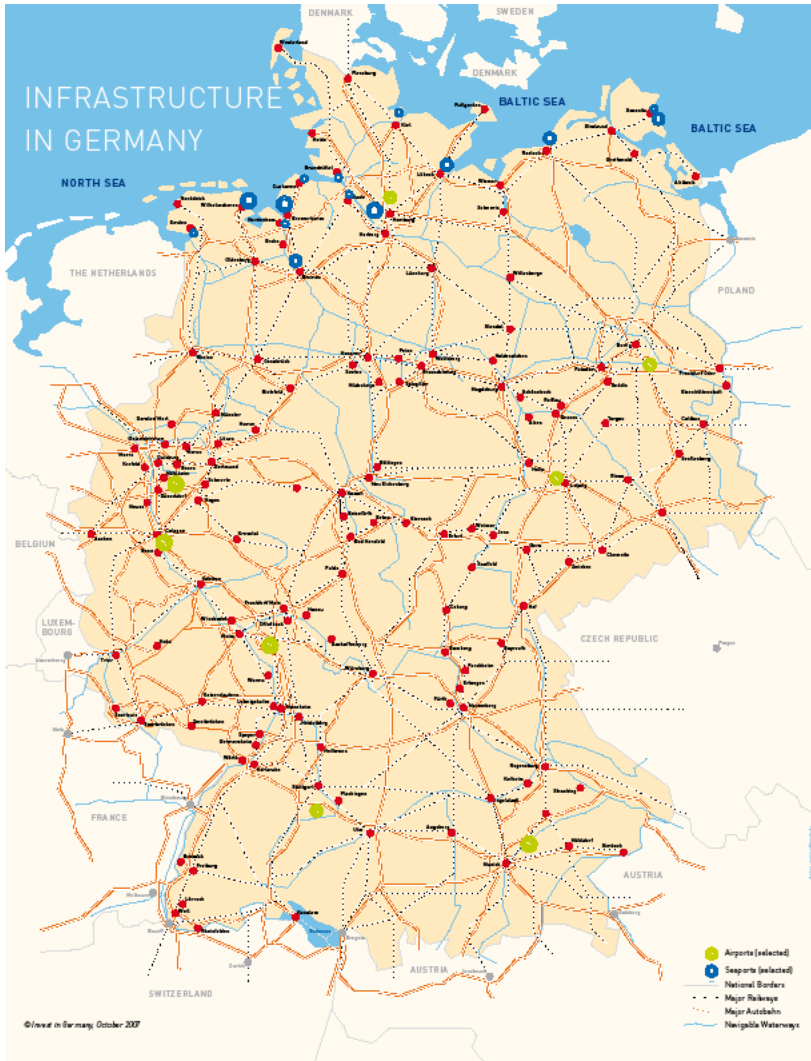
## Germany's outstanding infrastructure gives it logistical advantages



- Germany has the best transportation and logistics infrastructure in Europe
- The road density is twice as high as the EU average
- Transportation routes such as highways, rail, and waterways with a total length of almost 60,000 km
- National pipeline network
- Links to the world's markets via seaports

<sup>1</sup>) Respondents could give multiple answers  
Source: Ernst & Young, 2006

## Germany's outstanding infrastructure gives it logistical advantages



- All trans-European transportation routes cross Germany
- Excellent connections to the countries of Europe
  - Via the North and Baltic Sea routes to the UK, Scandinavia, and the Baltic states
  - Road and rail network to Denmark
  - Many different links to the Benelux countries, France, and Eastern Europe by road, rail, and water
  - Road and rail links across the Alps to the Mediterranean and the Balkan region

Germany is linked with the markets in neighboring countries via a dense and well-developed network of transport routes.

Source: Invest in Germany, 2007

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## Germany's chemical locations are connected to the European pipeline grid



- The diversified oil supply structure ensures a stable supply basis for the German chemical industry
- Germany gets its oil from the Mediterranean, and North Seas, and from Russia via pipelines
- Pipelines for ethylene and propylene supplement the supply structure for chemical parks
- Chemical parks are connected to a network of pipelines for natural gas, naphtha, hydrogen, carbon monoxide, and technical gases

Source: MWV Mineralölwirtschaftsverband e.V., 2006;  
VCI and chemical companies, 2007

## German chemical parks offer investors unique benefits



- Chemical sites are open for companies to industry investments
- 60 chemical parks with an excellent infrastructure and more than 20 km<sup>2</sup> of vacant sites for companies to invest
- Numerous integration possibilities and, consequently, cost-reducing synergies
- New industry segment: **"Site operators"** offer infrastructure, services, and expertise from one source

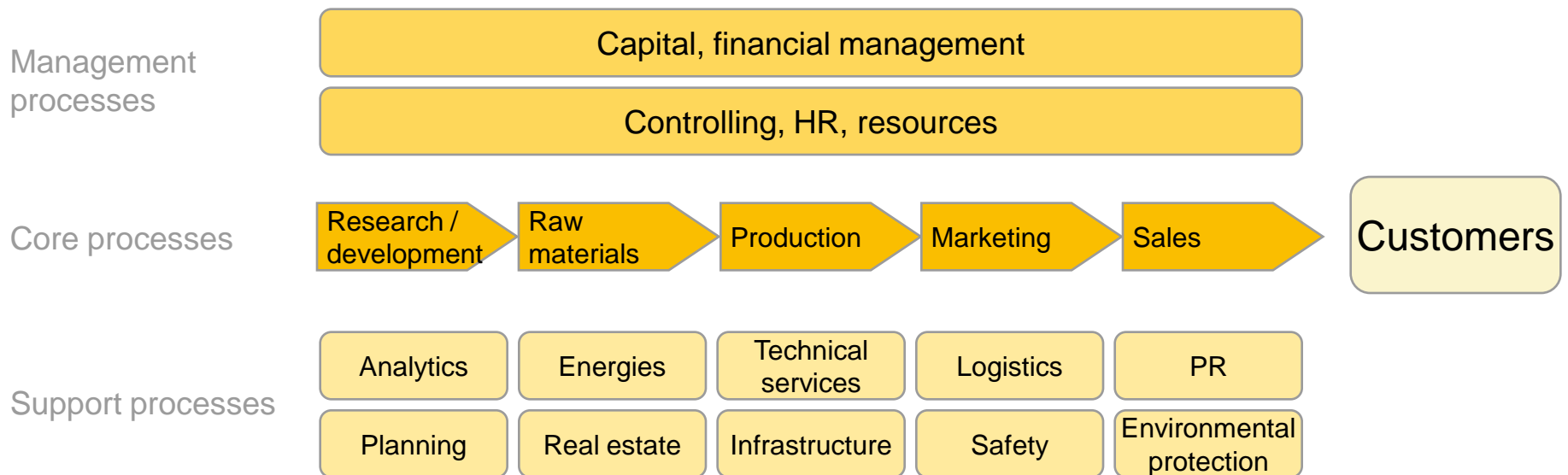
Source: VCI, 2007

## The range of services offered by "site operators"

- Optimum economic conditions on site
- Fully developed vacant sites with infrastructure suited to the chemical industry
- Extensive range of services
- Competent support to help new companies establish themselves
- Professional management of chemical parks

The chemical park concept offers investors individual solutions for their specific business model

Investors develop their business model and outsource all other business processes



In chemical parks investors can focus on their core business

Investors choose the services that suit their business model from the wide range offered by the site operators

## Production

- Vacant sites
- Site security
- Emergency management/ Fire service
- Supply and disposal networks
- Roads and railway tracks
- Environment/ safety/health
- Warehousing
- Energies/utilities
- HR services
- Logistics
- Hazardous goods handling
- Disposal
- Analytics
- Authority management
- Maintenance/ workshops
- Purchasing
- Site restaurants
- Engineering
- Basic and advanced training

The chemical park concept is aimed at investors throughout the entire supply chain

## Raw material producers

- Basic products (organic/inorganic)
- Fine/specialty chemicals
- Polymers

## Processors/refiners

- Plastics
- Pharmaceutical intermediates
- Mixed products (e.g. paints, surfactants)

## Producers of end products

- Plastics
- Pharmaceuticals
- Paints/coatings
- Fibers
- Detergents/cleaning agents/cosmetics

## Chemicals-related processing industry

- Paper industry
- Automotive components supply industry
- Oil refining
- Aluminum industry
- Metal machining
- Glass industry

## Producers of products based on renewable raw materials/biotechnology

- Biofuels
- Bio intermediates
- Biopolymers

## Investing in German chemical parks brings benefits for the companies

- Flexibilization and optimization of the business model
- Possibility of focusing on core business
- Time and cost benefits through offered individual services
- Investment benefits through existing infrastructure
- Synergy potentials resulting from optimum structures (e.g. links to supply chain, connections to research institutes)
- Benefits from integrated know-how structures

## The success model "Chemical Parks in Germany"

The concept of chemical parks in Germany has proven its value.

We invite investors from all over the world to take part.

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"The 10,000th ton of BP-TMC is a great success for Hi-Bis and furthermore it is also a necessary step to guarantee Bayer MaterialScience the stability in deliveries, in order to assure the production of APEC ® and the provision to the final customer." Managing director Mr Keiji Suzuki, April 2007

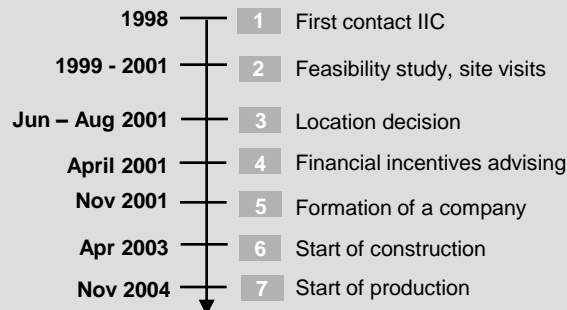
## Project Data

- Investment: € 38 million
- Product: Specialty Bisphenols
- Total number of new jobs: 37
- Start of construction: April 2003
- Start of production: November 2004
- Annual capacity of the new facility: 5,000 tons

## Decision Drivers

- Skilled local workforce
- Excellent infrastructure
- High quality of chemical site
- Proximity to product development partners
- Financial investment incentives
- Competing locations which were considered include Leuna and Antwerp (Central Germany)

## Timeline



## Location Bitterfeld / Greppin



“Quinn Chemicals would like to thank the state of Saxony-Anhalt, the infrastructure and service company InfraLeuna as well as the numerous industrial partners for their continued support on the development of this project. This support has been important in our achievements to date.” Dermot Carey, Senior Plant Manager Quinn Chemicals GmbH

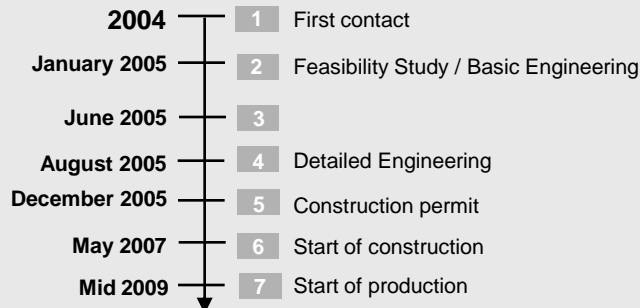
## Project Data

- Investment: more than € 260 million
- Product: Methylmethacrylate (MMA)
- Total number of expected new jobs: 110
- Start of Construction: May 2007
- Start-of-production: mid of 2009
- Annual capacity of the new facility: 100,000 tons

## Decision Drivers

- State-of-the art chemical site
- Excellent infrastructure
- Highly qualified workforce
- Proximity to product development partners
- Financial investment incentives

## Timeline



## Chemical Park Leuna InfraLeuna GmbH



“We may not have opted for the least expensive site, but for the most developed one, and we’re located in the heart of Europe. Given all the experience we’ve gained so far, we’d make the same decision today if we had to do it all over again.”  
S.I.Q. Manager Karlheinz Schönngel

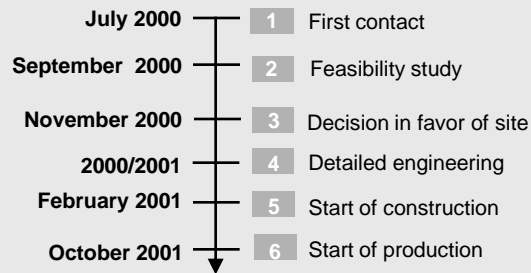
## Project Data

- Investments: € 5 million
- Investment project: multi-purpose plant for producing polycondensates and polyadducts
- Jobs in 2007: 32
- Annual capacity: 10,000 metric tons

## Decision Drivers

- Located within Europe
- Safety aspects
- Complete hassle-free deal: all the necessary infrastructure services are available for operating a chemical plant

## Timeline



## Location Marl



“Germany is the leading market for residential fuel cell development in Europe and, with a highly skilled labor force, the region of North Rhine-Westphalia provides one of the most advanced industry clusters for fuel cell technology in Europe. The company will scale up production significantly at this plant, which will allow us to increase revenue, reduce unit costs and feed the growing market demand for fuel cell energy products. We welcome the leadership of the North Rhine-Westphalian government in fostering the fuel cell industry, and acknowledge their strong support for the company’s project. We are also delighted to be working with Nuon as a partner at the Oberbruch site.”, Brendan Dow, Managing Director of Ceramic Fuel Cells Ltd

## Project Data

- Ceramic Fuel Cells GmbH ASX (Australia); AIM (UK)
- Area: 4,000 km<sup>2</sup> (stage 1); 40,000 km<sup>2</sup> (stage 2)
- Product / Technology: Fuel cell technology
- New jobs project team: 3; in total: 200
- Start of project: 2007 (stage 1)
- Start commissioning target: 2009
- Stage two: Potential for new factory

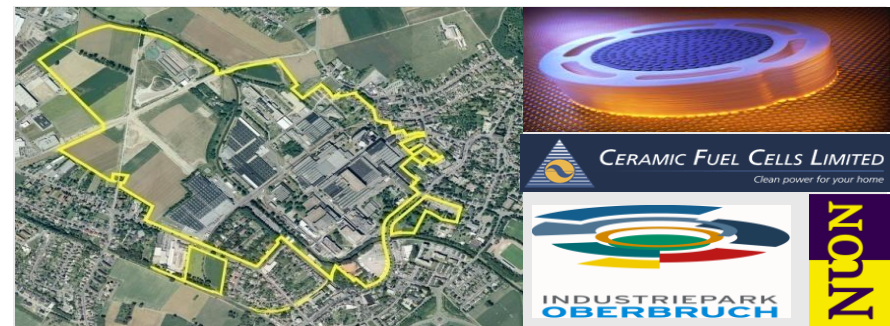
## Decision Drivers

- Germany - a leading market for residential fuel cell units, world-leading German industries, close to large market
- Highly skilled local workforce
- Outstanding research bodies
- Excellent on-site infrastructure
- Financial investment incentives

## Timeline



## Location Oberbruch



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Stand: 1/2008