Federal Ministry
of Economics
and Technology

BUSINESS.
GROWTH.
PROSPERITY.

Health
made in Germany

The Export Initiative for the German Health Care Industry

Federal Ministry
of Economics
and Technology

BUSINESS.
GROWTH.
PROSPERITY.

Health
made in Germany

The Export Initiative for the German Health Care Industry

Table of Contents

Dear Reader,

Are you looking for first-hand information about the German health care industry and face-to-face contact with experienced German companies in this field?

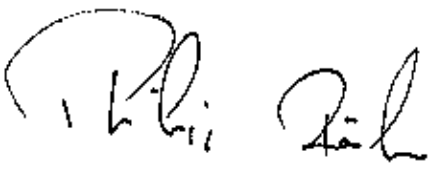
This booklet presents an overview of the German health care industry and companies providing international markets with an extensive range of products and services in the pharmaceutical, medical technology and medical biotechnology industries as well as telemedicine, health-related services and other industries.

In Germany, many companies are already world leaders in their fields, in part due to a policy of consistent and early health care promotion in Germany. German technology suppliers possess decades of valuable experience in realising health care projects both at home and abroad. Providers of products and services know to develop and implement customised solutions. The German health care industry is a powerhouse characterised by high levels of innovation, steady growth and the continuous development of employment potential.

Germany's Federal Ministry of Economics and Technology is publishing this guide as part of the initiative "Health made in Germany". We have pooled key information and contact details related to German health care products and services and are publishing them online for your use.

This guide provides an initial overview of how "Health made in Germany" can help you get connected to the right partners and find the information you need. Please go to our website for further insights: www.health-made-in-germany.com

Sincerely,



Dr Philipp Rösler
Federal Minister of Economics and Technology

1. Health made in Germany

As the populations of many countries age, health care is becoming a key issue.

In Germany, many companies are already world leaders in their fields, in part due to a policy of consistent and early promotion of health care in the country. German technology suppliers possess decades of valuable experience in realizing health care projects both at home and abroad. German industry knows how to develop and provide customized solutions. The German health care industry is a powerhouse characterized by high innovation, steady growth and continually developing employment potential.

Besides the U.S. and Japan, Germany is by far the most profitable health care market (EUR 408.7 billion total volume for the healthcare industry in 2007, with a 10.5 percent share of GDP in 2008).

Over the past 10 years, the average growth of gross value added in the health care industry has been significantly higher than in the overall economy.

Are you looking for ...

- → Information about health care products and services in Germany?
- → German suppliers and business partners in order to buy or distribute new products?
- → Events in Germany or in your home country to expand your international network?

German companies offer you a full range of innovative, high quality and reliable health care products and services.

“Health made in Germany”, initiated by the Federal Ministry of Economics and Technology, bundles key information and contact details relating to German health care products and services and publishes it for your use on the internet:
www.health-made-in-germany.com

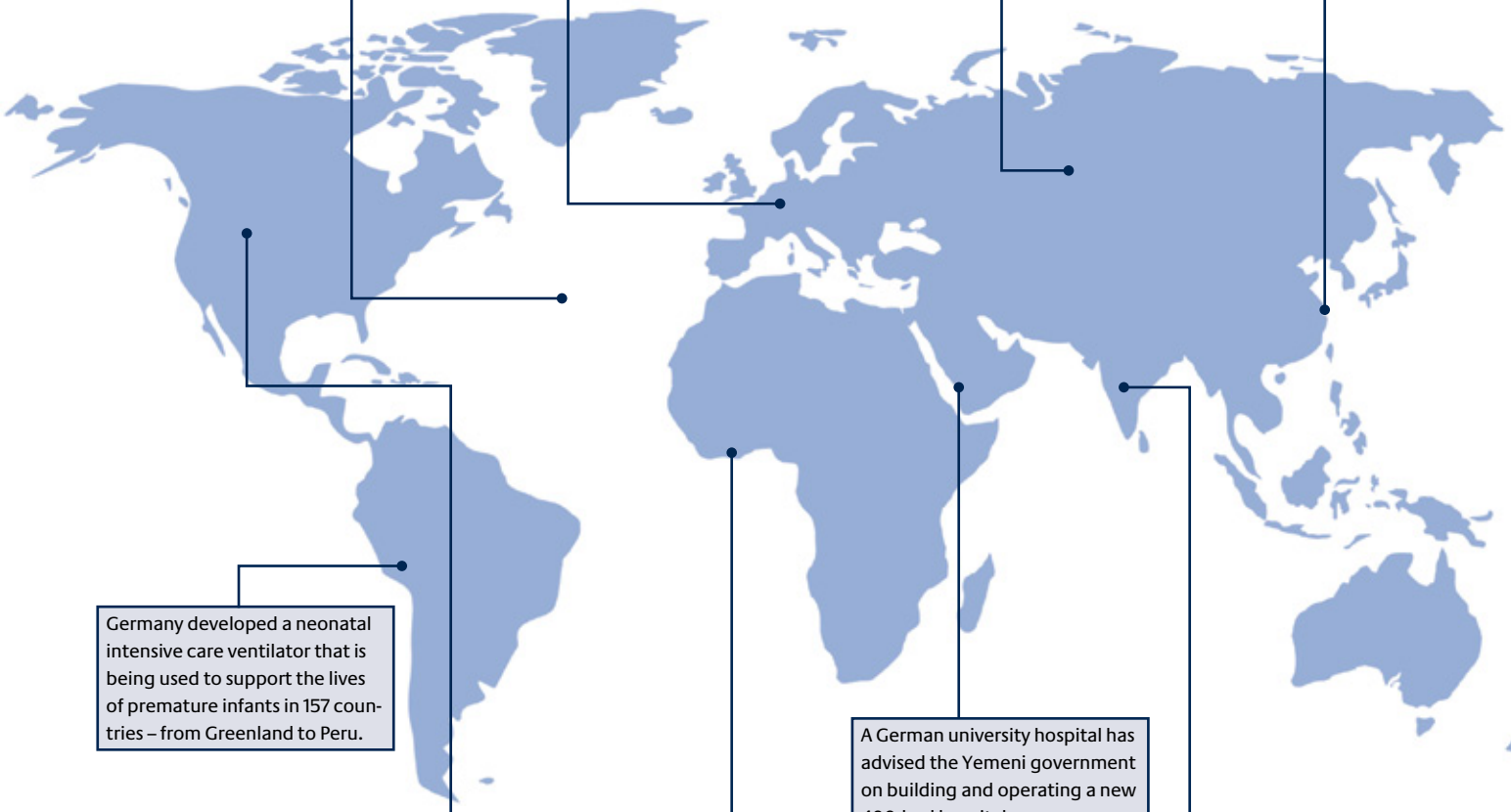
2. German Health Care Exports – Highlights Did you know ...?

Germany has delivered operating tables to some of the world's most unique and remote places, such as the Kazakh space center, Antarctica or to ships on the high seas.

Germany leads Europe in the field of biopharmaceuticals. As a global player, it is second only to the US.

A German company developed hip implants for the Asian market that were specifically adapted to the anatomy of Asians. More than twenty years after implantation, 95 percent of them are still working.

An internationally-renowned German company manufactured a medical heavy ion machine for treating of cancer patients and delivered the system to the Shanghai Proton & Heavy Ion Hospital.



Germany developed a neonatal intensive care ventilator that is being used to support the lives of premature infants in 157 countries – from Greenland to Peru.

A German university hospital has advised the Yemeni government on building and operating a new 400-bed hospital.

Germany tops the world in medical technology exports to the United States, Saudi Arabia, Russia and Poland. It is the second largest exporter of med-tech to Brazil, India, China, Argentina, Australia, South Africa and Turkey.

A German company exported and set up a complete hospital and laboratory, including medical technology in Nigeria. It also trained staff on site.

A German company promoted international cooperation by joining the World Bank and the Indian government to develop the Indian National Health Insurance Scheme. Until 2012, it will provide health insurance protection to 300 million Indians who would otherwise be unable to afford it.

3. German Health Care Industry Strengths – Innovation, High Quality, Safety and Reliability

Brand values of German products and services

A. Long experience setting global standards for innovation

The industry's consistent ability to turn theory into practice has played a key role in allowing this achievement. Reliable, close cooperation between companies and scientific research facilities are the basis of this strength. Among Germany's globally known scientific institutions are:

- The Fraunhofer Institute, including the Department of Biomedical Technology
- Helmholtz Association of German Research Centres, including a Dementia Research Centre
- Robert-Koch Institute (RKI)
- Paul-Ehrlich Institute (PEI)
- Institute for the Hospital Remuneration System (InEK)
- The Leibniz Association, including the German Diabetes Center, among other institutes

The high level of innovative drive is reflected in German research and development programs:

- Germany's federal government is pursuing a "High-Tech-Strategy" to promote innovation in the areas of biotechnology, pharmaceuticals and medical technology. From 2006 to 2009, the government made available a total of EUR 1.23 billion as part of this initiative.
- Germany led Europe in 2007 in filing patents, with 581 patent applications filed per million inhabitants. The European average that year was 135. Only Japan (2610) and the US (800) filed more patents per capita than Germany.
- In 2009, 2.78 percent of gross domestic product (GDP) was invested in R&D (around EUR 66 billion).

B. Quality through innovation

Numerous innovations in the German health care industry lead to progressively improved products and constant growth in know-how. German products have also been associated with high quality for decades and are in demand worldwide. As a result, many German companies in the health care industry can look back on years of successful, global experience. These companies are therefore able to custom produce equipment and technology to meet the needs of customers on-site and tailor products to suit local infrastructure.

Germany also leads the world when it comes to the quality of education and training of young people destined for careers in the health care industry.
Some 40 German universities independently offer full-fledged courses of study in the field of medical technology. Top flight programs and highly qualified teaching personnel ensure outstanding university educations for young talent, for example in the fields of engineering, biotechnology and medicine.

C. German safety standards set the mark internationally

Ensuring the quality of products and services is a priority in Germany. German products will continue to be associated with quality and safety worldwide because numerous institutions in Germany oversee the safety and reliability of technologies and manufactured goods.

Among the organizations that certify the safety and the reliability of products “Made in Germany” are:

→ The Medical Standards Committee (NAMed) in DIN e. V., which develops medical product and devices’ standards to provide patients, users and third parties with a high level of protection, and ensures devices function as specified by the manufacturer.

→ The TÜV carries out regular monitoring and issues certificates for medical and health care facilities (quality management and control).

→ Germany complies with EU directives for development and licensing of biopharmaceuticals, and pharmaceutical and medical products.

In this way, it is guaranteed that the products made here are reliable and work safely, even under extreme conditions and over long periods of time to ensure that customer expectations of every single product are fully met.

4. Overview of Selected Health Care Industries

A. Medical technology industry

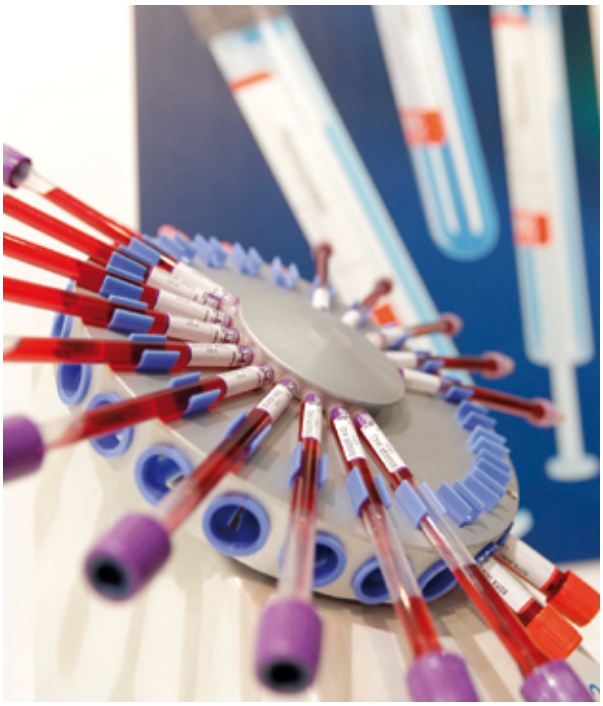
German companies are salient in the global ranks today. Germany leads Europe as a site for locating medical technology firms. It is also the third largest producer of medical technology, after only the USA and Japan.

Germany enjoys universal recognition as a place where products intended for use in a number of international medical technology markets are manufactured. Available products include everything from high-end items to commodities suitable for more general use in health care. New markets are being explored and products tailored to suit the specialized needs of foreign markets. German companies are innovation drivers and world market leaders in a number of sectors. A unique characteristic of German medical technology is that it is dominated mainly by medium-sized companies. These firms can react flexibly, meet a broad range of demands, and supply niche products for specialist applications. A significant number of manufacturers also pursue a product strategy that extends far beyond simple product provision. Integration into and compatibility with existing systems are key in this respect. After-sales provisions – including, for example, training, after-care service, and repair services – are also part of the portfolio that sets German companies apart from all the rest.

Germany's medical technology industry is still growing strong and optimistic about the future. Sales figures of some EUR 20 billion in 2010 allowed German firms in the segment to record growth of 9.4 percent for the year.

Export
Due to their innovativeness and quality, German products are popular worldwide. Many German companies are world leaders in their markets.

Exports remain key to this part of the health care industry, with its 2010 share at 64 percent. Sales to countries outside the European Union contributed particularly strongly to turnover figures for 2010. Exports to the USA increased by 14 percent, to China by 34 percent, and to Russia by 40 percent in that year. Although EU countries continue to be the most



important group of trading partners for German firms, Asia is well on its way to catching up. Exports to this part of the world increased by a quarter in 2010, with the figure for exports of all medical technology to this region at 17 percent.

B. Pharmaceutical industry

One of the most important global growth markets that has developed is for health care. When this began taking place, the pharmaceutical industry in Germany was already a significant global player. In 2009, 877 companies were registered as pharmaceutical companies in Germany, of which 241 had more than 20 employees. The country's pharmaceutical industry that year produced pharmaceuticals valued at EUR 26.5 billion and employed 108,230 staff. Germany exported pharmaceuticals valued at EUR 47.4 billion. In sales terms, Germany is the world's third largest pharmaceutical market.

The innovative work done by companies located in Germany is reflected in impressive patent figures. In 2007, Germany was Europe's number one with 581 resident patents filed per million inhabitants. With around 12,000 patents granted at the European

Patent Office in the same year, Germany's share is twice as large as that of France and the UK combined. Germany leads the EU in triadic patents (patents registered at the European Patent Office, the United States Patent and Trademark Office, and the Japanese Patent Office). In 2008, some 75 triadic patents per million inhabitants were issued. During that same year, some 11,425 patents for pharmaceuticals were registered in Germany for an increase equivalent to almost nine percent based on figures from 2004.

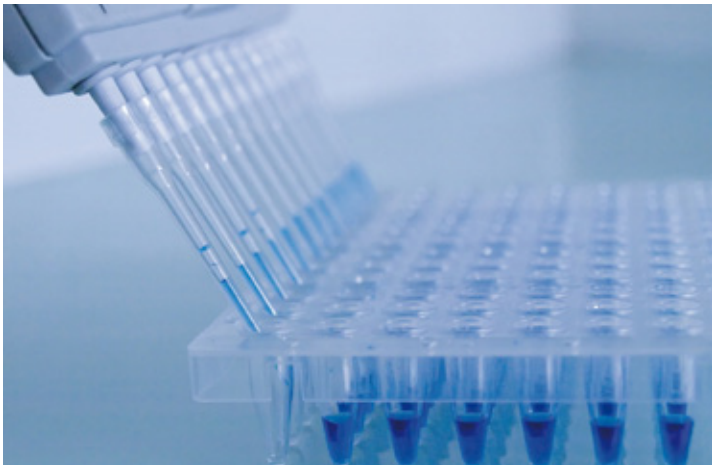
Export
Since the 1990s, Germany has been able to maintain its position as an important global production location for pharmaceutical products. Germany is the ideal place for internationally operating firms. The export ratio of the pharmaceutical companies in Germany has increased from around 48 percent in 2000 to more than 61 percent in 2009.

German companies in the healthcare industry have more than a century of successful global experience. They have developed world famous drugs like Aspirin ®, just to name one salient product. In 2010, a German company launched the marketing of Betaferon ® for the treatment of relapsing forms of multiple sclerosis (MS) in China. The drug is currently licensed in more than 100 countries worldwide.

C. Medical biotechnology industry

The industry covers an enormous range of products and services. The German medical biotechnology industry has made numerous innovations that have set global standards. The German biotech industry is a major driving force in Europe, both in terms of corporate representation and capacity to generate new – and profitable – intellectual property.

In 2010, the German biotechnology sector comprised 538 dedicated biotechnology companies, which employed 15,480 staff. 46.5 percent of the biotechnology companies based in Germany develop new drugs or diagnostic methods in the areas of human and animal medicine. Medical use ranks among the most important applications of biotechnology.



The German medical biotechnology sector is dominated by the production of biopharmaceuticals (e. g. antibodies), the manufacture of which is among the most demanding within the area of genetic technology. In addition to their use for making therapeutic drugs, DNA/RNA technologies also play a key role in genetic therapies and regenerative medicine as well as in medical biotechnology itself.

In 2010, 516 biopharmaceuticals were in Phase I-III clinical trials. Of these, monoclonal antibodies dominated, with 242 projects. Most of these antibodies were for treating tumors. Oncologic biopharmaceuticals accounted for a total of 37 percent of all new biopharmaceuticals then in a clinical trial stage or licensing process.

The German biopharmaceuticals' market grew by 12 percent from 2009 to 2010. That makes Germany number two in biotechnologically manufactured drugs – second in the world only to the USA. And other branches of biotechnology are growing continually as well.

German products are popular worldwide due to constantly increasing quality in development and production. This is reflected in the German market for biopharmaceuticals, which had sales of EUR 5.2 billion in 2010, for an increase of 10 percent on the preceding year (EUR 4.7 billion).

Export
Germany was one of the first countries to become active in developing biotechnology in the mid-1980s. Since then, the country has garnered a wealth of experience in doing business with biotechnological products and biotechnological methods as such.

D. Telemedicine and health-related services

Telemedicine is a particularly interesting segment of the eHealth market, given – above all – its potential for growth. Telemedicine defines diagnostics and therapy measures that make use of telecommunications to bridge distance and time intervals between doctors and patients or between consulting doctors. The applications go beyond the storage and processing of data. They include, for instance, testing systems for the secure transfer of radiological images (teleradiology) and electronic monitoring of the state of patients' health.

Health-related services covers a wide range of different products: From construction of hospitals, to training of skilled medical personnel and beyond, to hospital management and supply. Health-related services subsume auxiliary services for the health care industry.

The German health care industry is in a position to assist foreign health care systems in their efforts to supply their own citizens and visitors with the highest level of integrated support and care services. At the same time, the German health care industry can tailor health care modules to suit the geographic, social and economic needs in any type of environment (urban, rural).

Germany possesses vast know-how in hospital construction and management, the education of health care workers, and the provision of turnkey projects. It is well positioned to export these services all over the world.

Recent health care reforms have led to an increasing scarcity of financial resources in the hospital sector. This trend will continue to affect all sectors of health care. The increasing size of the elderly population and the growing number of persons with chronic diseases will pose new challenges for hospitals.

Enhancing efficiency in all hospitals is therefore one of the most important objectives in ensuring universal access to hospital facilities and maintaining high-quality care.

Export

Germany's companies in the field of telemedicine and health-related services are able to deliver "turnkey" solutions and train local staff in the use of technical equipment.

5. Historical Overview

Centuries of growth have shaped the German health care system

German health care milestones of global influence:

→ **1710:** Berlin's Charité hospital is founded. In 2003, the medical faculties at Berlin's Humboldt University and the Free University were merged and are now called the Charité – Universitätsmedizin. The merger has made the Charité one
→ of Europe's largest university hospitals.

→ **1810:** Samuel Hahnemann published the first book on homeopathic medicine.

→ **1850:** Hermann von Helmholtz invented the ophthalmoscope, paving the way for the development of modern ophthalmology.

→ **1854:** Physiologist Karl von Vierordt developed the sphygmograph to measure arterial pulse.

→ **1882:** Robert Koch identified the pathogen that causes tuberculosis.

→ **1895:** German physicist Wilhelm Conrad Röntgen discovered x-rays.

→ **1897:** Chemist and pharmacist Felix Hoffmann succeeded in manufacturing a chemically pure, stable form of acetylsalicylic acid. Aspirin® was born.

→ **1901:** Emil von Behring discovered the antitoxin for one of the most dangerous childhood illnesses of the 19th century, diphtheria. On the basis of von Behring's work, Paul Ehrlich succeeded in vaccinating people against the disease.

→ **1903:** German surgeon Ferdinand Sauerbruch develops the differential pressure chamber, making lung surgery possible.

→ **1924:** Using an artificial kidney, internist Georg Haas carried out hemodialysis for the first time.

→ **1929:** Hans Berger developed electroencephalography (EEG), a technique and device for measuring brain waves.

→ **1957:** Carl Zeiss – working in cooperation with Gerd Meyer – developed the xenon light photocoagulator, the predecessor of the optical laser.

→ **1962:** Dr. Bernd Braun invented the first intravenous catheter, the Braunüle® B. Braun.

→ **1990:** Two different health care systems are successfully merged after German reunification.

→ **2008:** Harald zur Hausen is awarded the 16th Nobel Prize in Physiology or Medicine for the discovery of the role of papilloma viruses in causing cervical cancer.

6. Get in Touch

What can “Health made in Germany” do for you?

“Health made in Germany” provides a range of offers in Germany and in your country:

- → Find business partners in Germany through our website.
- → Generate new business contacts and gain new information about upcoming events in your country.
- → Convince yourself of the quality of German health care products and services by visiting Germany on a trade mission.

Germany Trade and Invest
Health made in Germany
Friedrichstraße 60
10117 Berlin
Germany
T. +49(0)30 200 099-0
www.health-made-in-germany.com

Published by
Federal Ministry of Economics
and Technology
Public Relations
Scharnhorststrasse 34–37
D-10115 Berlin
E-Mail: info@bmwi.bund.de
www.bmwi.de

Design and production
PRpetuum GmbH, Munich

Image credits
AlexRaths – iStockphoto (front page),
Messe Duesseldorf / Constanze Tillmann (page 4, 8, 10)
Noctiluxx – iStockphoto (page 6) poco_bw / Fotolia
(page 7),
JB / fotolia (page 9)

Printed by
Silber Druck oHG, Niestetal

Current as of
July 2011

The Federal Ministry of Economics and Technology has been awarded the berufundfamilie® audit certificate for its family-friendly HR policy. The certificate is granted by berufundfamilie gGmbH, an initiative of the Hertie Foundation.