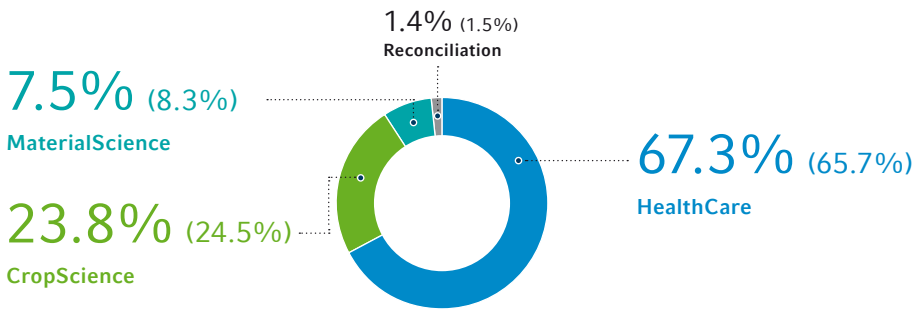
8. Research and Development

€2.75 billion
for research
and development

Our mission statement "Bayer: Science For A Better Life" underscores Bayer's belief that innovation has a major role to play in addressing global challenges and therefore will remain a key driver of the company's growth in the future. We have the resources at our disposal to generate further growth opportunities through research and development. In 2009 a total of €2,746 million – equivalent to 8.8% of sales – was invested in research and development, compared with €2,653 million in the previous year. Of particular importance is the focused development of new products to strengthen our core businesses. To expedite the growth we strive for, we are working to steadily renew and expand our product portfolio and optimize our production processes.
Being closely aligned to market needs, our research and development activities are subject to a continuous process of adjustment. They are supplemented by an international network of collaborations with leading universities, public-sector research institutes and partner companies.
By pooling expertise in this way, we aim to rapidly translate new ideas into successful products.
Our activities are also supported by the systematic advancement of the people who work in our research and development units.

Research and Development Expenses by Subgroup (2008 in parentheses) [Graphic 3.13]



€1,847 million
for research and
development
at HealthCare

HealthCare

In 2009 we invested €1,847 million (2008: €1,742 million) in research and development in the Pharmaceuticals and Consumer Health segments to lay the foundations for the launch of new and innovative health care products. This represented 67.3% of the Bayer Group's entire research and development expenditures and was equivalent to 11.6% of HealthCare sales.

Drug discovery in the Pharmaceuticals segment focuses on the areas of cardiology, oncology, women's healthcare and diagnostic imaging. The respective research activities and capacities are concentrated at three sites in Berlin and Wuppertal, Germany, and Berkeley, California, United States. Work in Berlin and Wuppertal centers largely on identifying molecular targets in order to develop and optimize lead substances. Research is also carried out at these sites in the fields of drug metabolism, pharmacokinetics, toxicology and clinical pharmacology. Berkeley is a major research and development center in which protein-based drug discovery and the biotechnological production of Kogenate® take place.

To drive the development of new substances for treating diseases with a high unmet medical need, we conducted clinical studies with several drug candidates from our research and development pipeline during 2009. On completion of all the necessary studies, we submitted applications

to one or more regulatory authorities for registration, or expansion of the existing registration, for some of these candidates. The most important drug candidates currently in registration are:

Products in Registration [Table 3.32]

	Indication
Rivaroxaban/Xarelto®	U.S.A., prevention of venous thromboembolism following elective hip and knee replacement surgery
Qlaira® (E2V/DNG)	U.S.A., fertility control (oral) and treatment of heavy and/or prolonged menstrual bleeding
Levitra®	Erectile dysfunction, orodispersible tablets
YAZ® Plus, Yasmin® Plus	Fertility control (oral) with added folate
Valette® Plus	E.U., fertility control (oral) with added folate

The following table shows the principal drug candidates currently in Phase III or II of clinical testing:

Research and Development Projects (Phases III and II)* [Table 3.33]

	Indication	Status
Alemtuzumab	Multiple sclerosis	Phase III
Alpharadin™	Treatment of bone metastases in hormone-refractory prostate cancer	Phase III
Angeliq® low-low	Hormone replacement therapy	Phase III
Bonefos®	Prevention of bone metastasis in breast cancer	Phase III
FC Patch low	Fertility control	Phase III
Florbetaben	PET imaging in diagnosis of Alzheimer's disease	Phase III
Gadovist®	Magnetic resonance imaging	Phase III
LCS (ULD LNG Contraceptive System)	Fertility control	Phase III
Nexavar®	Thyroid cancer	Phase III
Nexavar®	Non-small-cell lung cancer	Phase III
Riociguat (sGC stimulator)	Pulmonary hypertension (CTEPH)	Phase III
Riociguat (sGC stimulator)	Pulmonary hypertension (PAH)	Phase III
Rivaroxaban/Xarelto®	Prevention of venous thromboembolism in medically ill, immobilized patients	Phase III
Rivaroxaban/Xarelto®	Treatment of venous thromboembolism	Phase III
Rivaroxaban/Xarelto®	Stroke prevention in atrial fibrillation	Phase III
Rivaroxaban/Xarelto®	Secondary prevention of acute coronary syndrome/myocardial infarction	Phase III
VEGF Trap-Eye	Wet age-related macular degeneration	Phase III
VEGF Trap-Eye	Central retinal vein occlusion	Phase III
YAZ® Flex	Fertility control (oral)	Phase III

Research and Development Projects (Phases III and II)*

[Table 3.33 (continued)]

	Indication	Status
Alpharadin™	Treatment of bone metastases in breast cancer	Phase II
Amikacin Inhale	Pulmonary infection	Phase II
Cinaciguat (sGC activator)	Acute heart failure	Phase II
Ciprofloxacin Inhale	Pulmonary infection	Phase II
E2+DRSP	Fertility control (oral)	Phase II
L19-SIP	Lung cancer, brain metastases	Phase II
Nexavar®	Breast cancer	Phase II
Nexavar®	Colon cancer	Phase II
Nexavar®	Ovarian cancer	Phase II
Nexavar®	Additional indications	Phase II
Regorafenib (DAST inhibitor)	Cancer	Phase II
Riociguat (sGC stimulator)	Pulmonary hypertension (COPD)	Phase II
Riociguat (sGC stimulator)	Pulmonary hypertension (ILD)	Phase II
Sagopilone (ZK-EPO)	Lung/ovarian/prostate cancer	Phase II
VEGF Trap-Eye	Diabetic macular edema	Phase II
ZK 245186	Atopic dermatitis	Phase II

*as of February 15, 2010
PAH = pulmonary arterial hypertension; CTEPH = chronic thromboembolic pulmonary hypertension
COPD = chronic obstructive pulmonary disease; ILD = interstitial lung disease; PET = positron emission tomography
The nature of drug discovery and development is such that not all compounds can be expected to meet the pre-defined project goals. It is possible that any or all of the projects listed above may have to be discontinued due to scientific and/or commercial reasons and will not result in marketed products. It is also possible that the requisite FDA, European Medicines Agency (EMEA) or other regulatory approval will not be granted for these compounds.

We regularly evaluate our research and development pipeline in order to prioritize the most promising pharmaceutical projects. Among our principal development candidates is the innovative cancer drug Nexavar®, which has been developed jointly with Onyx Pharmaceuticals, Inc., United States. Nexavar® targets both the tumor cells and the vascular supply to the tumor. Preclinical trials have shown that the action of Nexavar® intervenes in two classes of kinase that are known to be involved both in cell proliferation (growth) and angiogenesis (the formation of new blood vessels) – two important processes that enable tumor growth. We continue to conduct research with this promising active substance, which is currently being marketed worldwide for the treatment of advanced renal cell carcinoma and hepatocellular carcinoma. Nexavar® is currently in various stages of clinical testing for the treatment of other tumor types (see Table 3.33).

Our novel anticoagulant Xarelto®, a direct Factor xa inhibitor in tablet form, was launched in September 2008 for prophylaxis of venous thromboembolism (VTE) in adult patients following elective hip or knee-joint replacement surgery. Bayer has received marketing authorization for the product in more than 80 countries, including the European Union member states, Australia, China, Canada and Mexico. Xarelto® is now on the market in over 60 countries. The extensive clinical trial program supporting Xarelto® makes it the most studied oral, direct Factor xa inhibitor in the world today. More than 65,000 patients are expected to be enrolled into the Xarelto® clinical development program, which will evaluate the product in the prevention and treatment of a broad range of acute and chronic blood-clotting disorders (see Table 3.33).

In the field of women's healthcare, we are working to expand the range of contraceptive options. In April 2009, Phase III clinical trials began with a transparent contraceptive patch, intended to become the smallest, lowest-dosed product of its kind on the market. Our oral contraceptives YAZ® Plus and Yasmin® Plus were submitted for approval in Europe and the United States. These products combine the contraceptives of the YAZ® family with a folate in a single tablet. Our novel oral contraceptive Qlaira® is already on the market in Europe. In May 2009 we submitted this product for approval in the United States, not only for contraception but also for treating heavy and/or prolonged menstrual bleeding. Qlaira® contains estradiol valerate, which is rapidly metabolized to estradiol in the body. This product is the first in a new class of oral contraceptives to deliver estradiol, the estrogen identical to the one produced by the female body.

Based on positive Phase II trial outcomes with riociguat, the first member of a new class of vasodilating agents known as soluble guanylate cyclase (sGC) stimulators, we moved into Phase III trials with this substance in December 2008. Administered in tablet form, riociguat is currently being investigated as a new approach to treating various forms of pulmonary hypertension.

Our activities in the area of diagnostic imaging are focused on the development of positron emission tomography (PET) tracers that may assist in earlier and more accurate disease diagnosis. We are concentrating on three indications: central nervous system disorders, oncology and cardiovascular diseases.

Our aim in the development of the new PET tracer florbetaben is to contribute to earlier and more definitive diagnosis of Alzheimer's disease. The Phase II data for this substance, presented in July 2009, underline its potential as an important imaging adjunct to clinical methods currently used to diagnose dementia. Additional Phase II studies are ongoing. The global Phase III program for florbetaben was launched in November 2009.

The portfolio of products emerging from our own research and development is supplemented by products in-licensed on a global, regional or national level. In collaboration with Genzyme Corp., United States, we are developing the humanized monoclonal antibody alemtuzumab, which is currently being tested in two global Phase III studies for the treatment of multiple sclerosis (MS). Under the terms of the new strategic agreement entered into by Bayer and Genzyme in 2009, the co-development partnership for alemtuzumab will continue. Bayer has returned the worldwide distribution rights for alemtuzumab to Genzyme Corp., United States, but will receive royalties and co-promotion rights.

In the VEGF Trap-Eye project that we are pursuing in collaboration with Regeneron Pharmaceuticals Inc., United States, two Phase III studies in age-related macular degeneration and a Phase II study in patients with diabetic macular edema are under way. In 2009 two Phase III studies were launched to investigate the use of the substance in central retinal vein occlusion (CRVO). VEGF (vascular endothelial growth factor) is a natural growth factor that stimulates the formation of new blood vessels (angiogenesis). VEGF Trap-Eye blocks this growth factor specifically and very effectively, preventing the abnormal formation of new blood vessels and the leakage of fluid. The medication is administered topically into the eye. Once the product has been granted regulatory approval, Bayer will market it outside the United States. Regeneron Pharmaceuticals Inc., United States, retains exclusive commercialization rights to VEGF Trap-Eye in that country.

We amended the agreement with ZymoGenetics, Inc., United States, for recombinant thrombin and will now market this product only in Canada. We received marketing authorization in Canada in December 2009 and expect to introduce the product in that market in February 2010.

In April 2009 Bayer entered into a licensing agreement with Ardea Biosciences, Inc., United States, concerning the development and marketing of small-molecule mitogen-activated ERK kinase (MEK) inhibitors for the treatment of solid tumors. These kinases are believed to play an important role in cancer cell proliferation, apoptosis (programmed cell death) and metastasis.

In September 2009 Bayer in-licensed Alpharadin™, an alpha-emitting radiopharmaceutical, from Algeta ASA, Norway, for joint development and marketing. The substance is currently being evaluated in a global Phase III trial for the treatment of bone metastases in prostate cancer patients who no longer respond to hormone therapy.

We also invest in continuous life-cycle management to identify possible additional indications and improved delivery forms for products already on the market.

In our Consumer Health segment, research and development activities of the Consumer Care Division at our product development centers in Morristown, New Jersey, United States, and Gaillard, France, focus on identifying, developing and commercializing non-prescription (over-the-counter = OTC) products. These efforts center on supporting both existing and new brands by implementing product-specific, clinical and regulatory development strategies that enable the successful exploitation of new technologies, the expansion of indications for existing products or the reclassification of current prescription medicines as OTC products. We introduced a variety of new product line extensions in several markets in 2009.

The research and development activities of our Medical Care Division focus on blood glucose monitoring and the continuing development of medical equipment used in the diagnosis or treatment of various diseases. At the research and development center for our diabetes care business in Tarrytown, New York, United States, we are working to strengthen core product lines and continue our expansion into attractive segments of the diabetes market. In 2009 we launched several innovative products, including Contour® USB, Didget® and A1cNow® SelfCheck to meet specific needs of individuals with diabetes. The research and development activities for our medical equipment business center on continually improving our market-leading contrast injection systems for computed tomography and magnetic resonance imaging as well as our vascular intervention systems. We are also entering additional attractive segments such as medical data management systems. The respective research and development center is located near Pittsburgh, Pennsylvania, United States.

The Animal Health Division focuses its research and development activities in Monheim, Germany, on anti-infectives and parasiticides along with active ingredients for the treatment of non-infectious disorders in animals. As well as developing new products to combat parasites in companion animals and livestock, the division concentrates on building its portfolio of organ disease products for dogs and cats, particularly in the areas of chronic kidney and cardiovascular diseases and cancer. In 2009 we launched Profender® (emodepside and praziquantel) – a novel substance to combat worm infestation in dogs – in the European market.

CropScience

€653 million
for research and development at CropScience

In 2009, €653 million (2008: €649 million) in research and development expenditures, or 23.8% of the Bayer Group total, were made in the CropScience subgroup. This was equivalent to 10.0% of subgroup sales.

CropScience maintains a global network of research and development facilities employing nearly 4,000 people. Our largest R&D sites for crop protection products are located in Monheim and Frankfurt am Main, Germany, and Lyon, France. The major research centers of the BioScience unit, which focuses on seed technology and breeding, are located in Ghent, Belgium, and Haelen, Netherlands.

While research is carried out centrally at a small number of sites, our development and seed breeding activities take place both at these sites and at field testing stations across the globe so that future products can be tested under regional climatic conditions.

As part of our integrated research approach, scientists in the fields of agricultural chemistry and seed technology are increasingly collaborating to pool the knowledge acquired through chemical, biological and genetic research and field development, aligning this expertise to our long-term research objectives and business strategies for the various crops.

In the Crop Protection unit we identify and develop innovative, safe and sustainable products for use in agriculture as herbicides, fungicides or insecticides, and carry out research projects across all indications in new areas of future importance, such as plant health or stress tolerance. In addition to conventional chemistry, biology and biochemistry, modern technologies such as genomics, high-throughput screening and bioinformatics play an important role in identifying new lead structures. Collaborations with external partners complement our own activities.

We are broadening the range of uses for our products by developing seed treatment solutions, new mixtures or innovative formulations of products already on the market so that they can be applied in additional crops or be made easier to handle.

The active ingredient pipeline of Crop Protection currently contains 20 development projects, of which 10 are at an advanced stage and 10 at an early stage of development. An additional 45 projects are undergoing early-stage research.

In 2009 we began marketing our active ingredient thiencarbazone-methyl in combination with our new safener cyprosulfamide. Thiencarbazone-methyl (major brands: Adengo®, Corvus®) is a new active ingredient to control weeds in corn and cereal crops. This substance, a member of the sulfonyl amino carbonyl triazolinone (SACT) class of herbicides, ideally complements our active ingredient isoxaflutole, which is already on the market. The combined modes of action of these two ingredients, in conjunction with the safener cyprosulfamide, ensure particularly good plant tolerance. Safeners are special substances added to herbicides to protect crops from potentially damaging effects of the active ingredient.

We plan to launch six promising new active ingredients between 2010 and 2012, subject to their successful registration:

Planned Product Launches [Table 3.34]

New active ingredient	Use	Planned launch
Isotianil	Fungicide	2010
Fluopyram	Fungicide	2010/2011
Bixafen	Fungicide	2010/2011
Bacillus firmus	Seed treatment biopesticide	2010/2011
Indaziflam	Herbicide	2011
Penflufen	Seed treatment fungicide	2011/2012

CropScience anticipates a total peak sales potential of €1.25 billion for the four new active ingredients it has launched since 2008 and the six other substances mentioned above that are expected to be commercialized by 2012.

We plan to strengthen our portfolio in Asia with the introduction of the new rice fungicide isotianil (major brand: Routine®), a member of the isothiazole class. This active ingredient from our research pipeline has undergone further development in collaboration with Sumitomo Chemical Co., Ltd. of Japan. Isotianil protects rice against Pyricularia, the fungus that causes rice blast, by stimulating the plants' natural defense mechanisms.

Fluopyram (major brand: Luna®) has been developed to combat problematic plant diseases caused by fungal pathogens. It is planned to market this active ingredient – a member of the new pyridinyl-ethyl-benzamide class – worldwide for foliar application and seed treatment in more than 70 crops. Key benefits are better storability and longer shelf life of harvested produce.

Bixafen (major brand: Aviator® Xpro™) is a new cereal fungicide that boosts yields thanks to its positive impact on plant physiology. This active ingredient, a member of the pyrazole class, was developed specifically for foliar application to combat speckled leaf blotch (Septoria tritici) and brown rust. Representing a new group of active ingredients, bixafen is well suited as a component of resistance management.

Bacillus firmus (major brand: Votivo®), a biological pest control agent for use as a seed treatment, is a new addition to our portfolio of conventional products to combat nematodes – threadworms that live in the soil.

Indaziflam is a new alkylazine herbicide with a long duration of action that is effective against a broad spectrum of difficult-to-control broad-leaf weeds and grasses. It is intended for use in agricultural specialty crops such as fruit and grapes and in numerous non-agricultural markets such as lawn care on golf courses and sports fields.

Penflufen is a novel pyrazole fungicide for seed treatment in various crops, such as potatoes, oilseed rape/canola, soybeans, corn and cotton. This substance is effective against a number of seed-borne pathogens and features particularly broad action and efficacy against Rhizoctonia spp. Penflufen contributes to particularly strong seedling development due to its good seed tolerance.

The compounds developed by Crop Protection are also tested and evaluated by our Environmental Science unit for possible non-agricultural uses. In addition, we carry out tests with active ingredients from other companies and may purchase such ingredients if results are positive. Current development projects include gels and baits to combat insect pests, new herbicides and fungicide mixtures, as well as biological solutions. In the area of vector control, we are stepping up research into insecticidal products for treating materials. Uses include impregnated nets to protect people from malaria transmitted by mosquitoes. We are also working closely with the Innovative Vector Control Consortium (IVCC) in Liverpool, United Kingdom, to assemble a new insecticides research platform and discover new resistance-breaking insecticides for the control of malaria vectors.

In 2009, Environmental Science introduced numerous new products featuring easy, user-friendly handling. In the United States, for example, we launched Triton® SG, a new triticonazole-based fungicide formulation. Products added to our Bayer Advanced portfolio for U.S. consumers included several new fungicides and insecticides. In Europe we expanded our Bayer Garden range, mainly by launching new herbicides and a new snail-control product. Several more product introductions are planned for 2010. These include herbicides for the green industry and innovative fungicides featuring our StressGard technology that not only combat fungal diseases but also improve plant health. We also plan to introduce new biologically based product lines for consumer markets this year.

Steady expansion of R&D activities in BioScience

Research in our BioScience unit is dedicated to optimizing plant traits. We are developing new seed varieties of our core crops – cotton, canola, rice and vegetables. In 2009 we expanded our research activities to include cereals and soybeans as additional core crops. Our research and development work focuses on the agronomic traits of these crops. For example, our scientists are working to develop crop plants that are highly resistant to stress factors such as extreme temperatures and drought. We also aim to increase the plants' yield potential and quality. Examples here include improving the profile of canola oil or enhancing the properties of cotton fibers. Further areas of focus include developing new herbicide tolerances based on alternative mechanisms of action, and improving insect and disease resistance. To do this we employ both modern breeding techniques and methods based on plant biotechnology. Our BioScience

research and development pipeline presently contains more than 50 promising lead projects and is complemented by over 80 current research agreements with public- and private-sector partners.

Business growth in BioScience in 2009 was supported by new product introductions. In conjunction with leading seed producers, we commercialized our LibertyLink® herbicide tolerance technology in soybean seeds in the United States. In 2011 we plan to introduce several innovative seed varieties, including cotton with our proprietary glyphosate herbicide tolerance trait and a cotton seed with tolerance against glyphosate and glufosinate-ammonium.

To further strengthen the innovative capability of CropScience, we intend to consistently increase research and development activities, particularly in the area of seeds and plant traits. The acquisition of Athenix Corp., United States, in November 2009 broadens our technology portfolio to include an additional extensive development platform for herbicide tolerance and insect resistance traits. We are also continuing to expand our network of research and development locations. For example, we aim to strengthen our presence in the important North American market by inaugurating a new biotechnological research center in Morrisville, North Carolina, United States, in the spring of 2010.

MaterialScience

In 2009, MaterialScience spent €207 million (2008: €221 million) on research and development (not including joint development activities with customers) to further expand its leading position in the market and in process technology as a global supplier of high-quality customized materials and system solutions. MaterialScience thus accounted for 7.5% of the Bayer Group's total research and development expenses. The subgroup's expenses in this field amounted to 2.8% of sales.

€207 million

for research and development at MaterialScience

The business units of MaterialScience employ the latest technologies and production processes to develop new products and applications in close cooperation with our customers and other external partners.

Product development work in the Polyurethanes business unit is focused on expanding applications for materials and optimizing the properties of our polyurethane systems. In the construction industry, for example, our polyurethanes form the basis for highly efficient insulating materials and in this way contribute actively to climate protection. Roughly 70 times as much energy can be saved during the product life cycle of rigid polyurethane foam as is required for its manufacture. As part of the Bayer Sustainability Program, regional centers of excellence are being established to launch the EcoCommercial Building concept Bayer has developed. This utilizes Bayer's own expertise in the field of high-tech construction materials and involves a partnership network consisting of suppliers, construction firms, architects and property developers. The aim is to offer modern, customized concepts for energy-optimized commercial and public buildings.

EcoCommercial Building Program: developing customized solutions for the construction of energy-optimized buildings

The use of renewable raw materials also plays an important part in our research and development activities. For example, we have developed polyols containing up to 70% by weight of renewable raw materials for use in mattresses, car seats and refrigerator insulation. Another groundbreaking application for polyurethanes is in the solar cell market, which continues to grow rapidly. The use of frames made from polyurethane considerably shortens production cycles for complete solar panel systems. Such frames also offer much greater design freedom and can be built flat into existing house roofs, for example.

Process development is currently focused on ways to manufacture new or improved raw materials and formulations and optimize the production of polyether polyols and aromatic isocyanates. Our 250,000 tons-per-year TDI facility in Shanghai, China, due to be completed in 2010 and start production in the second half of 2011, will employ the gas-phase phosgenation process, which uses up to 60% less energy than would a world-scale facility of the same size based on conventional technology. This innovative process will also lead to a reduction of up to 60,000 tons per year in carbon dioxide emissions.

Opening up new applications by developing customized products

The aim of our Polycarbonates business unit is to develop customized products that satisfy new customer needs and thereby open up new applications. In addition, we are working continuously to improve manufacturing processes. A key business driver is the identification of innovative solutions that align with global trends and societal needs. Such applications are made possible by the development of new polymer alloys (polycarbonate blends and compounds), modified base materials for polycarbonate sheets and various coating technologies for modifying polycarbonate surfaces. We are also continuing to develop architectural and other applications for polycarbonate sheets. Examples include roofing with maximum design freedom, highly effective and esthetic sound insulation walls and large-area window panes.

The principal development areas include LED light management, lightweight materials for the transport sector (such as polycarbonate glazing for cars), low-cost system solutions for automotive interiors, and design-based applications. Together with our customers we are developing solutions that address increasing global challenges in the areas of mobility, quality of life, the environment, and cost optimization in manufacturing.

Developing functional films for high-tech applications

The Coatings, Adhesives, Specialties business unit focuses its research and development activities on polyurethane raw materials for high performance coatings, adhesives and sealants, such as aliphatic and aromatic polyisocyanates and resin components. Important areas of research are raw materials for waterborne and UV-curing systems that meet today's market requirements and help to conserve resources by obviating the need for organic solvents and reducing drying times for coatings. In the new strategic business entity Functional Films and Specialties, we carry out research and development in the field of innovative surfaces and substrate materials. Here we focus on applications such as electroluminescent films, formable coated films for electronic and automotive applications, Makrofol® films to enhance the security of ID cards, and holograms as a security feature on bank cards and identification documents, for example. We are also working to open up more new applications in the areas of cosmetics and medical technology materials. In addition, we are established as one of the world's leading industrial-scale suppliers of carbon nanotubes (Baytubes®). In 2009 we completed the construction of the world's largest pilot plant for these materials with a capacity of 200 tons per year.

The New Business section of MaterialScience constantly tracks and evaluates new technological and market trends, channeling the most promising ideas into research and development projects in order to create profitable business opportunities for the future or expand existing technology platforms.

Bayer Technology Services

Bayer Technology Services supports all Bayer subgroups with technology platforms

All Bayer subgroups work closely with Bayer Technology Services worldwide on technology solutions, particularly in the fields of process technology, plant engineering, automation and product development. For example, this service company cooperates with MaterialScience in the development of new production processes that make efficient use of energy and raw materials, thereby helping the subgroup to safeguard its technological and cost leadership. Centralized development work on technologies relevant to more than one subgroup, such as nanotechnology and biotechnology, along with expertise in mathematical simulation and statistical data analysis, helps HealthCare and CropScience to shorten development times for new products. Another key strategic factor here is international knowledge sourcing in areas ranging from country-specific expertise in the handling of capital expenditure projects to the global exploitation of innovations.

Bayer Innovation

Bayer Innovation investigates and evaluates innovative areas adjacent to the subgroups' current core activities and develops them into viable new businesses for the Bayer Group. An example is the manufacture of plant-made pharmaceuticals. In 2009 the U.S. Food and Drug Administration accepted Bayer's application for a clinical trial involving a personalized cancer vaccine for the therapy of non-Hodgkin's lymphoma. In the field of medical technology, an innovative dressing made from bioresorbable silica gel fibers for the treatment of chronic wounds is undergoing clinical testing. In the agriculture sector, novel hybrid concepts based on polymer technologies and crop protection products are under development. The full potential of these technologies is being evaluated in close cooperation with the subgroups and external partners.

Bayer Innovation develops new businesses adjacent to core activities

Triple-i: Inspiration, Ideas, Innovation

The innovation campaign entitled "Inspiration, Ideas, Innovation" is motivating Bayer employees worldwide to submit ideas for new products and thereby add to the company's innovative capability. Some of these products have already been successfully commercialized.

9. Sustainability

Sustainability is a key component of our Values and Leadership Principles. True to our mission statement "Bayer: Science For A Better Life," we aim for sustainable commercial success based on sound business models and in harmony with the needs of our employees, society and the environment. To underline this mission we have committed to international sustainability initiatives such as the U.N. Global Compact and the Responsible Care Global Charter.

INTERNET

For more information on the new Bayer Sustainability Program, go to WWW.SUSTAINABILITYPROGRAM.BAYER.COM

Our objective is to develop innovative solutions that will help address global challenges such as providing sustainable health care, feeding a steadily growing world population, combating climate change and overcoming the scarcity of natural resources. We therefore plan to align our core businesses to sustainability criteria even more rigorously than before. In 2009 we launched the Bayer Sustainability Program, initially comprising eight lighthouse projects. Major areas of focus are our alliances for sustainable health care, innovative partnerships to improve the supply of high-quality food, and new solutions for protecting the climate and managing natural resources.

Oversight of the Group-wide sustainability strategy has been assigned to Group committees headed by the member of the Board of Management responsible for Innovation, Technology and Environment. As part of our "sustainability in procurement" strategy, we have compiled a code of conduct for suppliers covering ethics, employee relations, occupational health, safety, environmental protection, quality and management systems. Our suppliers are selected and evaluated on the basis of this code starting at the end of 2009.

INTERNET

The Sustainable Development Report can be found at: WWW.BAYER.COM/EN/SUSTAINABLE-DEVELOPMENT-REPORT.ASPX

To steer our sustainability performance, we have defined specific targets and indicators through 2010, both for the Group as a whole and for our subgroups and service companies, in five fields of activity: innovation, product stewardship, management excellence, social commitment and environmental responsibility. These are supplemented by additional goals reaching beyond 2010 in areas where we believe the need for action is greatest – such as climate protection.

Each year we publish a Sustainable Development Report based on Application Level A+ of the Global Reporting Initiative (GRI) guidelines.