Fraunhofer

ANNUAL REPORT 2010

The Fraunhofer-Gesellschaft

Research of practical utility lies at the heart of all activities pursued by the Fraunhofer-Gesellschaft. Founded in 1949, the research organization undertakes applied research that drives economic development and serves the wider benefit of society. Its services are solicited by customers and contractual partners in industry, the service sector and public administration.

At present, the Fraunhofer-Gesellschaft maintains more than 80 research units in Germany, including 60 Fraunhofer Institutes. The majority of the more than 18,000 staff are qualified scientists and engineers, who work with an annual research budget of €1.66 billion. Of this sum, more than €1.40 billion is generated through contract research. More than 70 percent of the Fraunhofer-Gesellschaft's contract research revenue is derived from contracts with industry and from publicly financed research projects. Almost 30 percent is contributed by the German federal and *Länder* governments in the form of base funding, enabling the institutes to work ahead on solutions to problems that will not become acutely relevant to industry and society until five or ten years from now.

Affiliated international research centers and representative offices provide contact with the regions of greatest importance to present and future scientific progress and economic development.

With its clearly defined mission of application-oriented research and its focus on key technologies of relevance to the future, the Fraunhofer-Gesellschaft plays a prominent role in the German and European innovation process. Applied research has a knock-on effect that extends beyond the direct benefits perceived by the customer: Through their research and development work, the Fraunhofer Institutes help to reinforce the competitive strength of the economy in their local region, and throughout Germany and Europe. They do so by promoting innovation, strengthening the technological base, improving the acceptance of new technologies, and helping to train the urgently needed future generation of scientists and engineers.

As an employer, the Fraunhofer-Gesellschaft offers its staff the opportunity to develop the professional and personal skills that will allow them to take up positions of responsibility within their institute, at universities, in industry and in society. Students who choose to work on projects at the Fraunhofer Institutes have excellent prospects of starting and developing a career in industry by virtue of the practical training and experience they have acquired.

The Fraunhofer-Gesellschaft is a recognized non-profit organization that takes its name from Joseph von Fraunhofer (1787–1826), the illustrious Munich researcher, inventor and entrepreneur.

ANNUAL REPORT 2010

Ladies and gentlemen,

Success can be a source of pride, especially when that success has been hard fought. 2010 was a successful year – not only for Fraunhofer, but also for the German economy as a whole. The country was astonishingly quick to overcome the effects of the financial and economic crisis, and Fraunhofer was able to make a substantial contribution to the recovery. This positive trend was no accident, but the result of taking the right steps and making judicious investments.

We realize that every crisis presents opportunities and, in this recent crisis, both private enterprise – and the state – made the right decisions at the right time. Investments in research and development were not scaled back as funds became scarce. Instead, they were maintained and even topped up. It is these investments that are bearing fruit now – much faster than many had expected. The economy is recovering, and so too are government revenues.

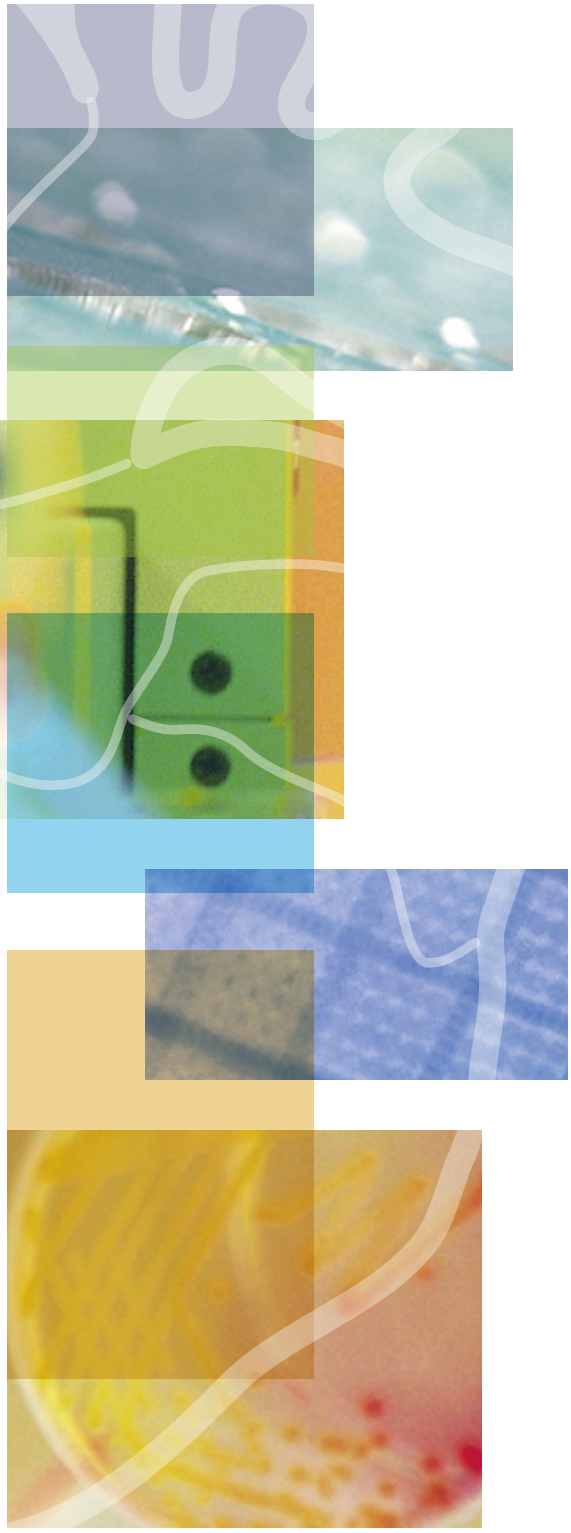
Not all the countries of Europe were so successful in managing the crisis and, consequently, a number of undesirable economic and financial developments now have to be addressed in turn. But we must not lose sight of the fact that the financial assistance required by some of our neighbors is an investment, too – an investment in the Europe from which we, as the strongest economy on the continent, profit to a very high degree. Viewed thus, the euro – which, by the way, remains a very strong currency – is an instrument we all draw huge benefit from and one that we should cherish accordingly.

The economic and scientific advances of the previous year are impressive, but they did not fall into our laps. We first of all had to set the right course and then work flat out to achieve our goals.

In many markets, the crisis acted as a catalyst to accelerate the changes already in progress. That has upped the pressure on companies – especially export-oriented ones in Germany – to innovate. And we, too, must keep up the pace of innovation if we want to continue to lead the field. Going forward, our 60 Fraunhofer Institutes will continue to face this challenge, developing innovative solutions for tomorrow's markets hand in hand with our partners.

Sincerely,

Hans-Jörg Bullinger
President of the Fraunhofer-Gesellschaft



REPORT OF THE EXECUTIVE BOARD

THE EXECUTIVE BOARD

MANAGEMENT REPORT 2010

REPORT OF THE SENATE
ON THE FINANCIAL YEAR 2010

THE EXECUTIVE BOARD

THE EXECUTIVE BOARD OF THE FRAUNHOFER-GESELLSCHAFT CONSISTS OF THE PRESIDENT AND TWO OTHER FULL-TIME MEMBERS. ITS DUTIES INCLUDE MANAGING THE FRAUNHOFER-GESELLSCHAFT AND REPRESENTING ITS INTERESTS BOTH WITHIN AND OUTSIDE THE ORGANIZATION.

THE EXECUTIVE BOARD FORMULATES THE BASIC PRINCIPLES OF THE FRAUNHOFER-GESELLSCHAFT'S SCIENTIFIC AND RESEARCH POLICY, PLANS ITS EXPANSION AND FINANCES, ENSURES ITS BASE FUNDING AND ORGANIZES THE DISTRIBUTION OF FUNDS AMONG THE INDIVIDUAL INSTITUTES. THE EXECUTIVE BOARD IS ALSO RESPONSIBLE FOR APPOINTING THE INSTITUTES' DIRECTORS.

Prof. Dr.-Ing. Hans-Jörg Bullinger
Corporate Management,
President of the Fraunhofer-Gesellschaft

Hans-Jörg Bullinger is professor of industrial science and technology management at the University of Stuttgart. He founded the Fraunhofer Institute for Industrial Engineering IAO and was its director for over 20 years before becoming President of the Fraunhofer-Gesellschaft in 2002.

Hans-Jörg Bullinger also represents the applied research community as an advisory member of Chancellor Merkel's Innovation Dialog and is chairman of the Research Union Economy – Science, which was founded to implement the German government's high-tech strategy. In 2010 he took on the rotating presidency of the Alliance of German Science Organizations.

"IN MANY MARKETS, THE PACE OF CHANGE HAS ACCELERATED IN RECENT YEARS. WE HAVE TO KEEP UP THE PACE OF OUR OWN INNOVATION IF WE ARE GOING TO CONTINUE TO HELP LOCAL INDUSTRY MAINTAIN ITS LEAD IN WORLD MARKETS."

Prof. (Univ. Stellenbosch) Dr. rer. pol. Alfred Gossner
Senior Vice President Finance and Controlling, IT and Human Resources

Alfred Gossner pursued a career with the Allianz Group, including various international postings. Before moving to the Fraunhofer-Gesellschaft in 2002, he served as a member of the board of management of Allianz Versicherungs-AG.

"FRAUNHOFER EMERGED FROM THE FINANCIAL AND ECONOMIC CRISIS IN VERY GOOD SHAPE AND HAS BEEN ABLE TO ACHIEVE A LOT FOR ITS CUSTOMERS. FRAUNHOFER'S TOP-CLASS RANGE OF SERVICES AND EXCELLENT REPUTATION AS A PROVIDER OF RESEARCH SERVICES PLAYED A KEY ROLE IN ITS SUCCESS."

Prof. Dr. rer. nat. Ulrich Buller
Senior Vice President Research Planning and Legal Affairs

Ulrich Buller was head of the central research planning department, director of the Fraunhofer Institute for Applied Polymer Research IAP and chairman of the Fraunhofer Group for Materials and Components – MATERIALS prior to being elected a member of the Fraunhofer-Gesellschaft Executive Board in 2006.

"THIS YEAR HAS BEEN DESIGNATED THE 'YEAR OF HEALTH RESEARCH', AND THAT IS AN INCENTIVE FOR US TO CONTINUE PROMOTING THE FRAUNHOFER INSTITUTES' ARRAY OF SERVICES AND SUCCESSES IN THE DEVELOPMENT OF MEDICAL DEVICES, TECHNOLOGIES AND THERAPIES."

SUMMARY OF KEY FIGURES AND RATIOS

Fraunhofer-Gesellschaft's business development 2006 – 2010

	2006	2007	2008	2009	2010
Total business volume (cash basis) in € million	**1186**	**1320**	**1401**	**1617**	**1657**
(operations and capital expenditure)					
Change	–5%	11%	6%	15%	2%
Total assets/total equity and liabilities in € million	**1692**	**1901**	**1995**	**2119**	**2287**
Change	9%	12%	5%	6%	8%
Breakdown of expenditure in %[1]					
Personnel expense ratio	49	45	48	48	50
Non-personnel expense ratio	31	31	34	29	29
Capital expenditure ratio	20	24	18	23	21
Breakdown of revenue in %[2]					
Total	68	70	69	68	72
Industry	39	38	36	31	34
Public sector[3]	29	32	33	37	38
International	12	11	12	12	13
EU	5	5	5	5	5
Employees[4]	**12,775**	**13,630**	**15,090**	**17,150**	**18,130**

1 Total operating expense/business volume (excluding change in license-fee revenue reserve and transfer to foundation fund capital)

2 Project revenue/operating budget and imputed depreciation allowance for contract research activities; since 2009 excluding project groups in the start-up phase

3 Public sector includes German federal and *Länder* governments, EU, research grants and other R&D/non-R&D

4 Numbers of employees at December 31, including part-time staff

MANAGEMENT REPORT 2010

Economic and political background

The recovery of the global economy in 2010 triggered a surge in economic growth, particularly in Germany and the emerging markets.

Germany's GDP rose by 3.6 percent, demonstrating unexpected speed in surmounting the crisis. Just one year after the worst recession in its history, the Federal Republic of Germany enjoyed its strongest economic growth since reunification. Growth stimuli came not only from burgeoning exports, but also from a positive trend in the domestic economy. Foreign trade benefited from the recovery in the global economy, once again proving to be a key factor in the growth of the German economy after the negative growth rates of the previous two years. Exports rose by 14.2 percent. At 13.1 percent, growth in imports was less strong, so the contribution of foreign trade to economic growth was 1.1 percentage points overall. 2010 was also characterized by renewed growth in investments, with gross investments rising by more than 10 percent to add 1.8 percentage points to economic growth – the biggest contribution overall. Moreover, consumer and government spending was higher than in the previous year, contributing a total of 0.7 percentage points to economic growth.

The economic recovery was quick to reach the labor market, with employment increasing by 0.5 percent in 2010 to 40.5 million, a new record level.

Spending on research and development (R&D) in Germany rose yet again, underscoring the significance of innovative technologies as a key driver of economic growth. In 2010, the federal government raised its research budget by 7 percent to just under €11 billion, its highest-ever figure. With its new "High-Tech Strategy 2020", the federal government has made further funds available to support the development of innovations in promising fields.

On current estimates, research investment by German business reached €58 billion – an increase of 4.4 percent over the previous year. Nevertheless, the EU member states and the federal government are unlikely to meet their joint goal of boosting the share of R&D spending to 3 percent of GDP by 2010. In 2010, this goal was included unamended in the EU's new economic strategy Europe 2020. This strategy aims to achieve closer integration of national and European R&D policies and to make R&D a central component of European economic policy.

Policy-makers and private enterprise must do more to enhance Germany's innovative strength. Indeed, the economic future of a knowledge-based society like Germany hinges on its power to innovate and tap into lead markets. Germany already enjoys a strong position and has enormous potential for generating the new ideas needed to exploit and shape promising markets. A key prerequisite for success in this field is a dynamic and powerful system of scientific research, and important foundations have already been laid with the Higher Education Pact, the Excellence Initiative, the Pact for Research and Innovation, and the planned Academic Freedom Act (Wissenschaftsfreiheitsgesetz). In its coalition agreement, the German government pledged to boost R&D spending and legislate tax breaks for R&D in an effort to create additional incentives for private enterprise. Above and beyond such initiatives, the country needs an innovation-friendly environment, while measures need to be taken to overcome the acute shortage of qualified workers. Innovative strength is the wellspring of economic growth and employment in a country like Germany, which is highly developed but lacking in natural resources, and innovations provide the key to new, sustainable growth.

Profile and structure of the Fraunhofer-Gesellschaft

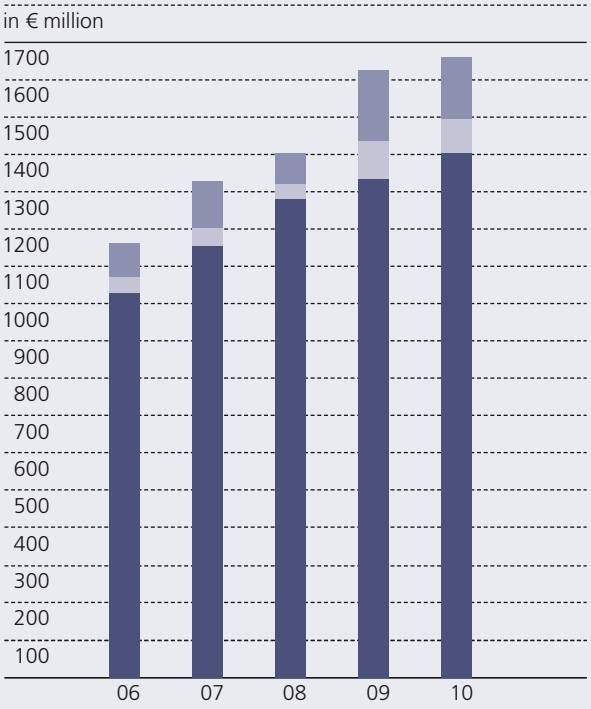
As one of the leading organizations for applied research in Germany and Europe, the Fraunhofer-Gesellschaft's core purpose is to pursue knowledge of practical utility. Its contractual partners and customers comprise industrial and service enterprises and the public sector. By orienting the focus of its work toward the key technologies of the future, the Fraunhofer-Gesellschaft plays a central role in the innovation process at a national and European level. Through its affiliated research centers and representative offices in Europe, the USA and Asia, the Fraunhofer-Gesellschaft enjoys direct contact with the regions of greatest importance to present and future scientific progress and economic development.

The organization's more than 18,000 employees handle an annual total business volume of €1.66 billion, €1.40 billion of which relates to contract research. Over 70 percent of the Fraunhofer-Gesellschaft's contract research revenue is derived from contracts with industry and publicly financed research projects, while the remaining share of just under 30 percent is funded by the federal and *Länder* governments. This equips the organization in particular to finance pre-competitive research projects delivering future benefit to industry and society.

Given the ever-growing volume of research and increasingly complex technological challenges, a systematical ramp-up of both personnel numbers and technological capacities is necessary. Tapping into the innovative fields of the future requires new skills to be built up, both within and outside of existing structures. The Fraunhofer-Gesellschaft currently runs more than 80 research institutes, 60 of which are located in Germany.

On February 1, 2010, the Hermsdorfer Institut für Technische Keramik e.V. (HITK) was integrated in the Fraunhofer-Gesellschaft, becoming part of the Fraunhofer Institute for Ceramic Technologies and Systems IKTS in Dresden. The merger of these two successful research institutes enhances the Fraunhofer-Gesellschaft's ceramic technologies portfolio, especially in the energy, chemical and environmental technology fields.

Fraunhofer-Gesellschaft total business volume (cash basis) 2006–2010



	2006	2007	2008	2009	2010	
■	1032	1164	1291	1340	1402	
■	39	39	38	87	93	
■	115	117	72	190	162	
=	**1186**	**1320**	**1401**	**1617**	**1657**	in € million

■ Contract research
■ Defense research
■ Major infrastructure capital expenditure

Business performance

2010 was a successful year for the Fraunhofer-Gesellschaft, with the economic upswing having a positive impact on business performance. The organization saw additional growth in practically all its areas of business. Just one year after the worldwide financial and economic crisis, Fraunhofer's project revenue reached €1.2 billion, its highest-ever volume.

At €1657 million, the organization's business volume also reached a new peak. It comprised expenditure on contract research (the main area of R&D activities), defense research, and major infrastructure capital expenditure.

Expenditure on contract research activities rose by €62 million to reach €1402 million. At €93 million, expenditure in the defense research sector was 7 percent higher than in the previous year. Capital expenditure on major infrastructure weighed in at €162 million. As anticipated, this was lower than last year and was attributable to a drop in funding from the federal and *Länder* governments' stimulus programs. Still, the overall amount invested remains very high.

In the following, we report on income and expenditure items of the performance statement for each separate type of research. For information on the accounting principles used by the Fraunhofer-Gesellschaft, please refer to the notes to the financial statements (not included in the English version of the annual report).

Expenditure and income for contract research activities 2006–2010 (in € million)

	2006	2007	2008	2009	2010
Personnel expenses	531	548	624	697	745
Non-personnel expenses	335	379	456	428	443
Change in the special license-fee revenue reserve and allocation to foundation capital	66	65	44	55	56
Current capital expenditure	100	172	167	160	158
Expenditure	**1032**	**1164**	**1291**	**1340**	**1402**
Imputed depreciation allowance	100	113	128	143	151
Project revenue	702	776	859	916	1030
Industrial revenue	399	422	452	407	463
of which license-fee revenue	92	94	83	78	93
Federal and *Länder* governments	167	219	248	317	406
European Commission	51	55	61	65	65
Other income	85	80	98	127	96
Base funding including reserves	330	388	432	424	372
Income	**1032**	**1164**	**1291**	**1340**	**1402**

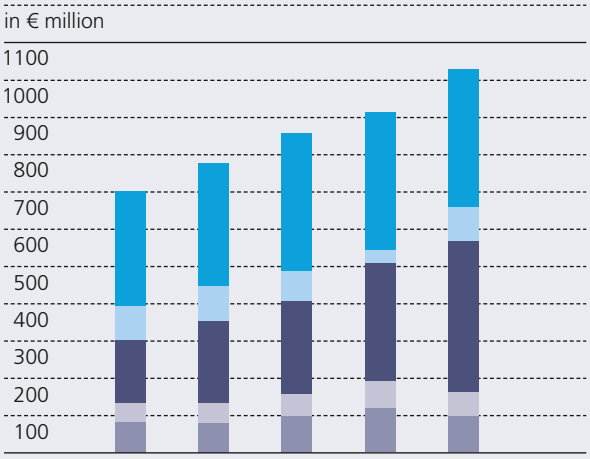
Contract research

Personnel expenses for contract research rose by 7 percent to €745 million in the financial year 2010, primarily owing to gratifying growth in staffing levels of just under 6 percent. What is more, a 1.2 percent pay rise granted under the public-sector collective wage agreement (TVöD) also served to increase personnel expenses.

Non-personnel expenses grew by 3 percent to €499 million as a result of the increasing volume of research. Investments in technical apparatus, office equipment and minor building projects amounted to €158 million, enabling the Fraunhofer Institutes to further enhance their already exceptional technical infrastructure, a major factor in the success of their research work.

The Fraunhofer-Gesellschaft's revenues followed a very positive trajectory in the financial year 2010. Project revenue from industry and public-sector customers reached a record €1030 million. That equates to a rise of 12 percent in project revenue, which thus grew faster than expenditure. As a result, over 70 percent of expenditure could be financed through project revenue.

Changes in contract research revenue 2006–2010



	2006	2007	2008	2009	2010	
■	307	328	369	329	370	
■	92	94	83	78	93	
■	167	219	248	317	406	
■	51	55	61	65	65	
■	85	80	98	127	96	
=	**702**	**776**	**859**	**916**	**1030**	in € million

■ Industrial revenue (excluding license fees)
■ License-fee revenue
■ Federal and *Länder* governments
■ European Commission
■ Other income

Industrial revenue made a strong recovery, reaching €463 million. The institutes were thus able to reap the benefits of strong economic growth. What is more, the success of the measures they implemented to grow industrial revenue, coupled with their strong presence in the market, had a positive overall impact. The Fraunhofer-Gesellschaft generated revenues of €370 million from contract research projects with industry, and €93 million from the licensing of patents.

With growth of just under 20 percent, license-fee revenue also grew substantially. This gratifying trend was mainly attributable to revenue generated by mp3 technology, which was considerably higher than the previous year. Other license-fee revenue continued steadily along the positive trajectory of recent years.

Public-sector revenue rose sharply again in 2010, with project revenue from the federal and *Länder* governments totaling €406 million, a jump of 28 percent year on year.

In the financial year 2010, the Fraunhofer-Gesellschaft generated revenues of €175 million from contract research projects with international partners; this includes €21 million in revenues from foreign subsidiaries. Revenue generated abroad increased by 12 percent over the previous year – a positive reflection of global economic growth.

Other income from R&D activities rose to €28 million and includes €9 million from contracts with universities, which represent the Fraunhofer-Gesellschaft's core cooperation partners in the scientific arena. Among other things, collaboration with tertiary education institutions enables the Fraunhofer-Gesellschaft to enhance its access to scientific networks, to attract promising young scientists, and to step up its levels of pre-competitive research.

Revenues from the German Research Foundation (DFG), other foundations and research funding organizations amounted to €23 million, up €3 million over last year's figure, and includes €9 million from projects funded by the Fraunhofer-Zukunftsstiftung (Fraunhofer Future Foundation).

Other revenue came to €45 million and includes income from the use of Fraunhofer research facilities by external partners, income from the reversal of provisions, and capitalized self-constructed assets.

Base funding from the federal and *Länder* governments increased by 3 percent in accordance with the agreements concluded with the relevant funding agencies.

Defense research

The defense research segment comprises the competencies of the seven defense-related Fraunhofer Institutes.

In a world of ever more complex risks, the development of innovative security technologies is gaining in significance. In addition to defense-related technologies, the Fraunhofer Institutes also successfully develop security solutions for the civil sector as part of their project-related research for customers in industry and public administration. Defense research in cooperation with the German Federal Ministry of Defence (BMVg) complements contract research, and combining them can unleash valuable synergies. Another advantage of this "dual-use" philosophy is that it permits the cost-efficient utilization of available R&D capacities.

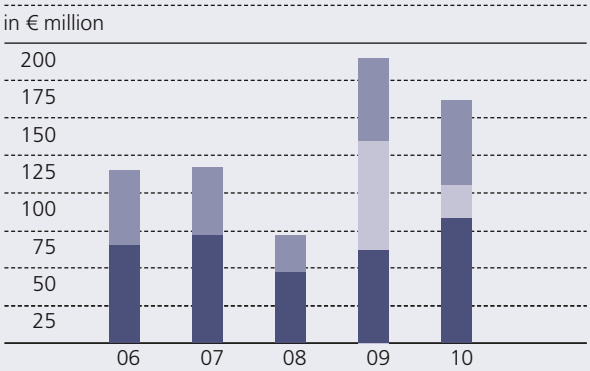
Expenditure on defense research activities rose by 7 percent in 2010 to reach €93 million, which makes up a share of 6 percent in the organization's total business volume (cash basis). This expenditure can be broken down into €59 million in personnel expenses, €22 million in non-personnel expenses, and €12 million in current capital expenditure. Of this total, €57 million was received in the form of base funding from the German Federal Ministry of Defence (BMVg), while a further €36 million was financed mainly through additional BMVg projects. What is more, the defense-related institutes generated €20 million in income from civil contract research, which is posted under contract research activities.

Capital expenditure

In the financial year 2010, the Fraunhofer-Gesellschaft invested €332 million in expanding and upgrading its research capacities. The investment ratio – which expresses capital expenditure as a share of business volume – amounted to 20 percent.

At €170 million, current investment in technical apparatus, office equipment and minor building projects matched the high level of the previous year. Major infrastructure capital expenditure remained quite high at €162 million. As anticipated, however, this was below the record figure of 2009 and was attributable to a marked drop in funding from the federal and *Länder* governments' economic stimulus programs. Capital expenditure beyond the stimulus programs reached a volume of €140 million, 20 percent higher than in the previous year.

Major infrastructure capital expenditure and funding sources 2006–2010



	2006	2007	2008	2009	2010	
■	65	72	47	62	83	
■	–	–	–	73	22	
■	50	45	25	55	57	
=	**115**	**117**	**72**	**190**	**162**	in € million

■ Federal government and host *Länder* of the institutes
■ Economic stimulus programs I and II
■ ERDF (European Regional Development Fund)

Major infrastructure capital expenditure is funded by the federal and *Länder* governments, with the *Länder* governments utilizing €57 million from the European Regional Development Fund (ERDF) for this purpose in 2010. The federal and *Länder* governments made available €22 million in funds under the economic stimulus program II.

The most extensive infrastructure projects completed in 2010 concerned the Fraunhofer Center All Silicon System Integration ASSID in Dresden, which opened in May, the Chemical and Biotechnological Process Center CBP in Leuna and the Fraunhofer Institute for Microelectronic Circuits and Systems IMS in Duisburg.

A total of €37 million was invested in the construction of the Fraunhofer Center All Silicon System Integration ASSID. This, the new research center of the Fraunhofer Institute for Reliability and Microintegration IZM, will further strengthen the institute's leading position in the field of 3-D wafer-level packaging and interconnect technologies. The goal is to enhance the performance of microelectronic components through the application of 3-D silicon system integration technologies. The components are not simply grouped on a single level, but placed on top of each other and connected up in multiple layers (stacks). The tiny, complex systems created in this way are primarily used in areas requiring very high-speed signal processing, for example image processing and analysis, medical devices, and security applications. The center's aim is to develop tailor-made solutions in close cooperation with customers from industry and research.

Major infrastructure capital expenditure 2010 (in € million)

Institute/Research institution		Total	ERDF[1]	Federal/*Länder* governments
All Silicon System Integration	Dresden	36.5	23.8	12.7
Center for Chemical-Biotechnological Processes	Leuna	8.9	–	8.9
Microelectronic Circuits and Systems	Duisburg	8.6	4.3	4.3
Silicon Technology	Itzehoe	4.9	2.5	2.4
Non-Destructive Testing	Saarbrücken	4.9	2.4	2.5
Center for Silicon Photovoltaics	Halle	4.7	3.5	1.2
Center for Silicon Photovoltaics	Schkopau	4.3	3.2	1.1
Electronic Nano Systems	Chemnitz	4.0	2.4	1.6
Silicate Research	Würzburg	3.9	0.9	3.0
Wind Energy and Energy System Technology	Bremerhaven	3.7	0.9	2.8
Industrial Engineering	Stuttgart	3.7	–	3.7
Interfacial Engineering and Biotechnology	Stuttgart	3.6	–	3.6
Applied Optics and Precision Engineering	Jena	3.5	2.1	1.4
Telecommunications, Heinrich-Hertz-Institut	Berlin	3.5	–	3.5
Machine Tools and Forming Technology	Dresden	3.0	1.6	1.4
LOEWE Research Center AdRIA (Adaptronics – Research, Innovation, Application)	Darmstadt	2.9	–	2.9
Applied Polymer Research	Potsdam-Golm	2.5	1.3	1.2
Structural Durability and System Reliability	Darmstadt	2.5	–	2.5
Photonic Microsystems	Dresden	2.4	1.5	0.9
Technology Center for Semiconductor Materials	Freiberg	2.4	1.4	1.0
Modular Solid State Technologies	München	2.3	–	2.3
Application Centre Large Structures in Production Engineering	Rostock	2.3	1.2	1.1
Production Systems and Design Technology	Berlin	2.1	–	2.1
Cell Therapy and Immunology	Leipzig	2.0	1.2	0.8
Material Flow and Logistics	Dortmund	1.5	–	1.5
Mechanics of Materials	Freiburg	1.4	–	1.4
Toxicology and Experimental Medicine	Braunschweig	1.3	–	1.3
Laser Technology	Aachen	1.2	–	1.2
Hannover Center for Translation Medicine	Hannover	1.1	–	1.1
Solar Energy Systems	Freiburg	1.1	–	1.1
Other projects		9.3	3.0	6.3
Measures financed by federal/*Länder* governments and/or ERDF		**140.0**	**57.2**	**82.8**
Economic stimulus program II federal government		4.7	–	4.7
Economic stimulus program II *Länder* governments		17.5	–	17.5
Economic stimulus program II		**22.2**	**–**	**22.2**
Major infrastructure capital expenditure		**162.2**	**57.2**	**105.0**

1 ERDF = European Regional Development Fund

€9 million was spent on the construction of the Center for Chemical-Biotechnological Processes CBP in Leuna – a project for which €50 million has been earmarked in total. Processes enabling the sustainable use of renewable raw materials are gaining in importance worldwide. But despite numerous successful projects in this field, they have rarely been successfully carried over into industrial applications. As a result, it has not yet been possible to fully exploit the potential offered by biotechnology. The new joint center of the Fraunhofer Institutes for Interfacial Engineering and Biotechnology IGB and for Chemical Technology ICT will enable the production-scale deployment of biotechnological processes with the aid of a special biorefinery concept developed by Fraunhofer. The CBP's location in Leuna, a chemical industry hub in central Germany, means it enjoys efficient, state-of-the-art infrastructure and direct access to industry.

At the Fraunhofer Institute for Microelectronic Circuits and Systems IMS in Duisburg, €9 million was invested in setting up the new Microsystems Technology Lab & Fab, for the development of integrated microsystems and nanosystems in the strategic next stage of advanced CMOS technology. Research carried out at Fraunhofer IMS includes intelligent electronic components for machines and technical devices as well as the integration of ambient intelligence in the complex social environment in the shape of electronic systems and networks. The new facilities will enable the development of smart, compact, monolithic micro-scale and nano-scale systems-on-a-chip, and support the institute and its research partners in developing and diversifying into more advanced technologies.

Fraunhofer Groups

Fast and flexible networking is one of the outstanding features of the Fraunhofer-Gesellschaft. The closely coordinated pooling of skills and expertise, coupled with strategies that are firmly focused on the market, ensure that the organization is able to adapt its research work to suit the rapid progress of technology in all industrial application areas. The Fraunhofer-Gesellschaft has thus systematically oriented its structure towards research groups so as to be able to offer its customers end-to-end system solutions from a single source.

The Fraunhofer Institutes belonging to the contract research segment have organized themselves into the following six Fraunhofer Groups, each devoted to a specific area of technology:

The **Fraunhofer Group for Materials and Components – MATERIALS** is the largest group within the Fraunhofer-Gesellschaft in terms of its current expenditure (€338 million). At €264 million, the group also achieved the highest volume of project revenue. It currently pools the resources of 14 different institutes dealing with materials research, components and their behavior in systems. The group leverages its expertise mainly in the fields of energy, health, mobility, building construction and the home environment, its goal being to implement system innovations by developing tailor-made materials and components.

The **Fraunhofer Group for Microelectronics** coordinates the activities of the 13 Fraunhofer Institutes and Research Institutions involved in microelectronics and microintegration. Its expenditure rose by 8 percent in 2010 to €308 million. The group's nine business units, working in areas ranging from automation to smart system integration, together generated revenues of €237 million, which represents a substantial year-on-year increase of 18 percent. The group's revenues thus covered 84 percent of its expenditure. Of this amount, 43 percent stemmed from successful collaborative projects with industrial partners, underscoring the group's outstanding position in the market.

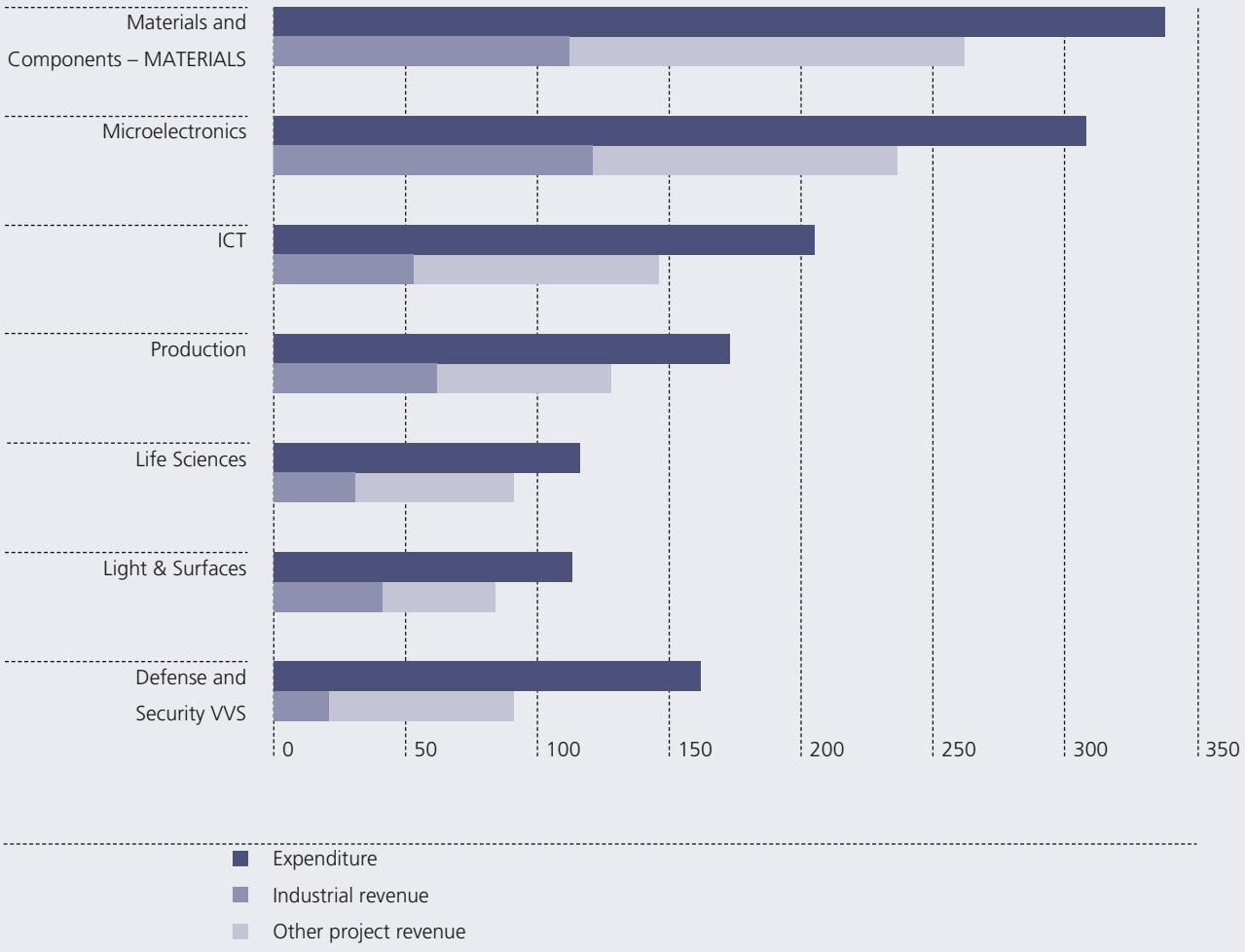
The **Fraunhofer ICT Group** continued to maintain its position as the largest group of its type in Europe. The 15 member institutes serve a variety of different business fields – including digital media, e-business, software, traffic and mobility – creating tailored IT solutions, providing professional advice on technology, and carrying out pre-competitive research on innovative products and services. The group's expenditure in the year under review increased by 4 percent to €205 million, with project revenue up 9 percent to €146 million.

The **Fraunhofer Group for Production** utilizes the latest research findings from the production and engineering sciences and information technology so as to offer its customers a range of services along the entire product lifecycle or, in the case of production processes, along the whole supply chain. The group's expenditure in 2010 grew by 4 percent to reach €173 million, with project revenue up 14 percent to €128 million. The innovative nature of the work being carried out in this area of research is illustrated by the fact that Andrzej Grzesiak, an engineer at the Fraunhofer Institute for Manufacturing Engineering and Automation IPA in Stuttgart, and two employees of Festo AG & Co. KG, Esslingen, were awarded the German Future Prize (Deutscher Zukunftspreis) 2010 for their joint project entitled "The elephant's trunk as a model – a high-tech helper in industrial and household applications". The project centered on transferring natural construction principles to a robotic system, creating a uniquely flexible Bionic Handling Assistant for a new generation of versatile assistance systems. The German Federal President's Award for Technology and Innovation is worth €250,000 and honors both the development of the process and its successful implementation as a marketable product.

The **Fraunhofer Group for Life Sciences** pools the Fraunhofer-Gesellschaft's expertise in the biological sciences, biomedicine, pharmacology, toxicology, and food technology. In line with its guiding principle of "research for human health and the environment", the group focuses on innovative ways of maintaining human health and the environment in an industrialized world, and develops new methods of diagnosing and treating illnesses. In the financial year 2010, the six institutes in this group generated project revenue of €91 million, recording the strongest rate of growth in project revenue across all the Fraunhofer Groups. The group's expenditure increased by 6 percent to €116 million. At 92 percent, the proportion of expenditure covered by revenues was the highest of all the Fraunhofer Groups.

The **Fraunhofer Group for Light & Surfaces** specializes in surface engineering and photovoltaics, two key technologies of the future. The significance of these technologies, with their myriad application areas, is growing in step with technological progress, especially in the production of optical and optoelectronic components and products as well as in surface processing and measurement techniques in the field of laser technology. In the financial year 2010, the group generated project revenue of €84 million, thus posting substantial growth of 14 percent. The group's expenditure increased by 6 percent to €114 million.

Expenditure and project revenue of the Fraunhofer Groups 2010 (in € million)



The **Fraunhofer Group for Defense and Security VVS** coordinates the civil defense and research activities of the seven Fraunhofer Institutes that receive base funding from the German Federal Ministry of Defence (BMVg). In a world of rising risks, innovative security technologies are becoming much more important to society. Thanks to its expertise in civil and defense-related security research, the Fraunhofer-Gesellschaft is ideally equipped to develop new technologies in these areas. In the financial year 2010, the group's expenditure rose by 10 percent to €162 million.

Financial situation and net asset position

Liquidity

The Fraunhofer-Gesellschaft's cash assets (cash and cash equivalents including current bank accounts) totaled €53 million at the end of 2010. This amount includes €49 million carried forward under the terms of the management statutes, which is held in trust by the German Federal Ministry of Education and Research (BMBF) until it is used by the Fraunhofer-Gesellschaft.

Owing to the restrictions imposed by its statutes, the Fraunhofer-Gesellschaft cannot make use of the options open to large commercial enterprises of raising funds in the capital markets or maintaining credit facilities with banks in order to avoid potential cash-flow bottlenecks. For this reason, cash assets represent an essential liquidity reserve for the Fraunhofer-Gesellschaft, enabling it to respond flexibly to market risks and to build up its research expertise in the long term.

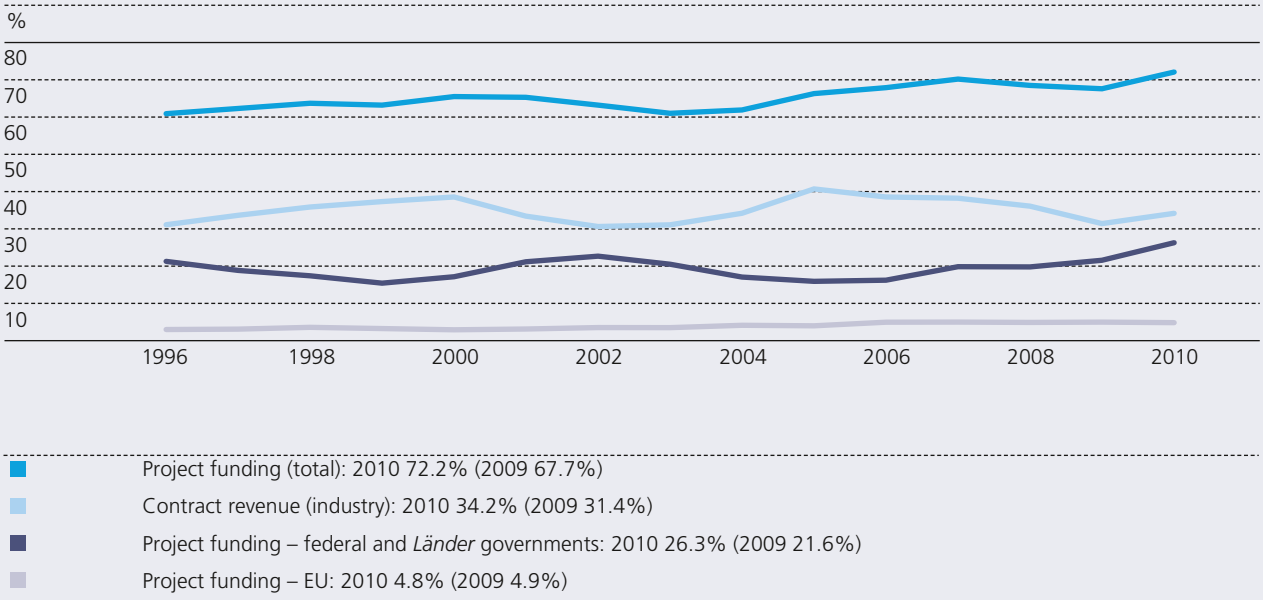
The Fraunhofer-Gesellschaft's management statutes limit the amount of cash assets it can hold. However, as part of the federal government's Academic Freedom Initiative, this restriction has been considerably eased. Currently, up to 50 percent of the organization's base funding can be carried forward to the following year and used for long-term projects. The €49 million carried forward in 2010 under the terms of the management statutes represents a share of 3 percent of the Fraunhofer-Gesellschaft's business volume and 23 percent of the maximum amount of funds that can be carried forward (€210 million).

Public-sector funding

The Fraunhofer-Gesellschaft receives one-third of its financing through base funding, with the other two-thirds coming from projects with industry and public-sector research projects. To support their contract research activities, the institutes receive base funding from the German Federal Ministry of Education and Research (BMBF) and the 15 host *Länder*, split in a ratio of 90:10 (federal:*Länder*). This base funding provides the means to develop innovative technologies on a longer-term basis, unaffected by changing economic cycles.

In the financial year 2010, the funding agencies increased base funding of the major research organizations by 3 percent in accordance with the Pact for Research and Innovation. In order to ensure that the Fraunhofer-Gesellschaft achieves growth that is geared to the demands of industry and, at the same time, maintains its financing model, base funding must be increased at a higher rate. The agreement reached in June 2009 by the federal and *Länder* governments to renew the Pact for Research and Innovation until 2015 and to raise the annual increase in funding to 5 percent starting 2011 creates more leeway, enabling the Fraunhofer-Gesellschaft to systematically expand its research portfolio in line with the needs of the market. In return for this increase, the funding agencies require that the research organizations take measures to improve the efficiency and quality of their services. Above and beyond the identification of new lines of research, the focus on excellence, the strengthening of partnerships and networks, and the promotion of talented young scientists, it was also agreed in the extended Pact for Research and Innovation to implement new strategies in international cooperation. Moreover, the Fraunhofer-Gesellschaft undertook to make an active contribution toward creating a dynamic research and education system. In the course of the annual evaluation by the federal and *Länder* governments, the Fraunhofer-Gesellschaft was confirmed to be effectively and sustainably implementing these measures.

Fraunhofer-Gesellschaft funding resources in the contract research segment 1996–2010



Project revenue from public-sector customers continued to grow in the financial year 2010. Revenue from federal government projects in the contract research segment amounted to €298 million. This revenue was primarily attributable to contracts awarded by the German Federal Ministry of Education and Research (BMBF), while a large share was also accounted for by projects of the German Federal Ministry of Economics and Technology (BMWi).

Project revenue from the *Länder* governments amounted to €108 million. Thus, even as the economic stimulus programs were expiring, we were nevertheless able to boost public-sector demand for Fraunhofer research activities by 28 percent. Public-sector projects now account for 26 percent of total revenues of the Fraunhofer-Gesellschaft. This gratifying trend enables us to continue expanding our research capacities and highlights the relevance of innovative technologies for economic growth and competitiveness.

Owing to budgetary restrictions, public-sector projects cannot be financed through a combination of project and base funding. What is more, the political mandate of the Fraunhofer-Gesellschaft as a national research institute requires that the resources it receives in base funding be utilized to develop new areas of activity of strategic interest. Against this backdrop, funding ratios for public-sector projects that do not cover costs pose a problem for the Fraunhofer-Gesellschaft.

A binding arrangement has already been reached with the BMBF to fix the levels of project funding, the key principle being that projects initiated by the BMBF and carried out exclusively by the Fraunhofer-Gesellschaft without external partners should be financed at a standard rate of 100 percent.

By contrast, project funding by the *Länder* governments is still quite heterogeneous owing to the wide variety of legal and financial conditions for research funding. The result in some cases is funding ratios of less than 50 percent, which has a negative impact on base funding and restricts the amount of pre-competitive research that can be carried out. Given both public-funding objectives and budgetary restrictions, it is imperative that the funding requirements of the *Länder* governments be adapted to enable full financing. The Fraunhofer-Gesellschaft needs to be able to use its own resources for in-house pre-competitive research so that it can continue enhancing its innovative strength.

Academic Freedom Initiative

The German research community is facing increasingly tough international competition. The research institutions' success and their ability to innovate depend as much on the legal framework as on the provision of funding, which is why it is so important to create a legislative framework that is flexible, research-friendly and competitive on a global scale. On the initiative of the federal government, the main points were set down in 2008 to grant research institutions greater scope in the areas of personnel, budgets, partnerships, construction projects and procurement. Corresponding measures have already been partially implemented. In regard to staffing, corresponding dispensations enabled research institutions to pay supplemental allowances to their research personnel so as to be able to offer more competitive employment conditions. As regards funding, enhancing both the option of using operating and investment funds for purposes beyond the specifications of their budget line and that of carrying such funds forward to subsequent years ensures that they are used in an efficient manner that reflects actual needs. Within the scope of national and international partnerships, the scientific institutions will now be permitted to transfer and circulate institutional development funds. What is more, the institutions are expressly empowered to transfer up to 5 percent of their base funding resources to third parties for the purposes of the latters' base funding. In addition, changes were introduced (by means of special dispensations under the economic stimulus programs) to accelerate planning and approval procedures for individual pilot construction projects and to eliminate administrative hurdles that slow down the processing of invitations to tender, in the hope that these improvements would make capacity and infrastructure available to the research community sooner.

In 2010 the German Bundestag debated on how to refine this initiative. A bill is now being planned to translate the initiative into an Academic Freedom Act. The measures agreed upon by the German government are viewed as an important step toward an internationally competitive system of science that actively fosters research.

Balance sheet

The balance sheet total at December 31, 2010, stood at €2287 million, up 8 percent over the previous year.

Fixed assets increased by €86 million to €1493 million, of which €1467 million was accounted for by property, plant and equipment. At December 31, 2010, property, plant and equipment represented 64 percent of total assets and was thus the predominant item on the assets side of the Fraunhofer-Gesellschaft's balance sheet. Intangible assets and financial assets amounted to €13 million each.

Accounts receivable and other current assets increased by €70 million to €470 million, with €13 million of that increase accounted for by trade receivables. Receivables from the federal and *Länder* governments rose by €67 million. Accounts receivable from associated companies decreased by €4 million and other current assets by €6 million.

Inventories net of advance payments by customers increased by €9 million.

Cash-equivalent, short-term marketable securities increased by €9 million to €239 million. Allocations totaled €40 million, while disposals amounting to €31 million comprised transfers to the spending capital of the Fraunhofer Future Foundation. In the financial year 2010, the Fraunhofer-Gesellschaft transferred a nominal amount of €50 million to the Fraunhofer Future Foundation, €19 million of which was offset against receivables from project billing. The Fraunhofer Fund's available assets were invested in low-risk liquid securities; on average, the split was 49 percent in bonds, 45 percent in money market instruments and 6 percent in equities. In view of the uncertain market environment, the Fraunhofer Fund's asset allocation policy favored low risk investments, with the Fund steering and proactively containing its investment risks through dynamic, systematic management of the allocations to the individual segments and through risk overlay with threshold control.

Cash assets (cash and cash equivalents including current bank accounts) decreased by €8 million to €53 million.

Prepaid expenses and deferred charges, which include prepaid rent, maintenance contracts, and services, rose to €6 million.

The Fraunhofer-Gesellschaft's equity at December 31, 2010, amounted to €13 million, an increase of €0.4 million commensurate with the net profit for the year from the association's accounts. The non-profit organization's capital is that portion of the Fraunhofer-Gesellschaft's assets that has not been acquired out of public funds. In addition to the capital of the non-profit organization and the restricted reserves, equity is also deemed to include the special reserves for license-fee revenue and for grants relating to fixed assets.

In 2010, net license-fee revenue amounting to €56 million was transferred to the corresponding special reserve, while €50 million was transferred from the reserve to the Fraunhofer Future Foundation as spending capital. The license-fee revenue reserve stood at €238 million on December 31, 2010.

Funds received for the purpose of acquiring and constructing fixed assets are transferred to a special reserve, which is reduced each year by an amount corresponding to the annual depreciation expense on the related assets. The special reserve for grants relating to fixed assets increased by €86 million to €1480 million in 2010, in line with the carrying amount of the assets financed by such external funds.

The special reserve for funds used to finance current assets is used to account for income not yet received or expenses not yet paid by the balance sheet date. In the financial year 2010, the special reserve for funds used to finance current assets increased by €71 million to €173 million.

Provisions for pensions and similar obligations amounted to €11 million. The Fraunhofer-Gesellschaft took out a reinsurance policy to cover its existing pension obligations, as a means of offloading biometric risks and converting uncertain long-term liabilities into foreseeable, calculable costs. The pension provisions were measured at the higher capitalized value calculated by the insurance company at the balance sheet date in order to provide a more accurate representation of the net asset position in accordance with the actual economic situation.

Other provisions decreased by €15 million to €112 million, mainly as a result of lower provisions for impending lawsuits and expected lower take-up rates for phased early retirement. Following the introduction of the German Accounting Law Modernization Act (BilMoG), amended accounting standards were applied for the first time in the 2010 financial statements, with provisions for phased early retirement in the amount of €4 million being balanced against the corresponding assets from the existing insolvency insurance, thus reducing the amount of the provisions accordingly. The change in other provisions has no impact on the funding situation due to the simultaneous increase in the special reserve for funds used to finance current assets. In the case of pension and compensated absence provisions, corresponding balancing amounts are entered on the assets side of the balance sheet.

In the financial year 2010, liabilities increased by €20 million to €253 million, and comprised €159 million in grants from the federal and *Länder* governments still to be appropriated, €85 million in trade payables, and €9 million in other liabilities.

Deferred income amounting to €6 million relates primarily to lump-sum license fee payments received for mp3 technology before the balance sheet date and not recorded as revenue in 2010.

No subsequent significant events have arisen since the balance sheet date that are material for assessing the development of the organization's business in 2010 or which have a substantial impact on its financial position, net assets or operating results.

Employees

The workforce of the Fraunhofer-Gesellschaft continued to grow throughout 2010, reaching 18,130 by year end. After a surge in employee numbers in 2009, growth was more subdued in the financial year 2010, with just under 1000 new employees joining the ranks. Overall, the Fraunhofer-Gesellschaft's workforce has doubled in the last ten years.

In the global competition for the brightest minds, it remains a challenge for us to find the qualified staff that we need to handle the ever-growing volume of research work and to meet increasingly more complex technological requirements. The Fraunhofer-Gesellschaft has therefore expanded its personnel marketing and recruitment activities and differentiated them to a greater degree.

Initiatives that were previously focused on the national market were broadened in 2010 to include international markets. The Fraunhofer-Gesellschaft took part, for instance, in events organized by international initiatives such as the German Scholars Organization (GSO) and the German Academic International Network (GAIN) in the USA. It also made use of international tradeshows to present itself as an attractive employer for foreign scientists as well as for German academics returning home after study or research abroad.

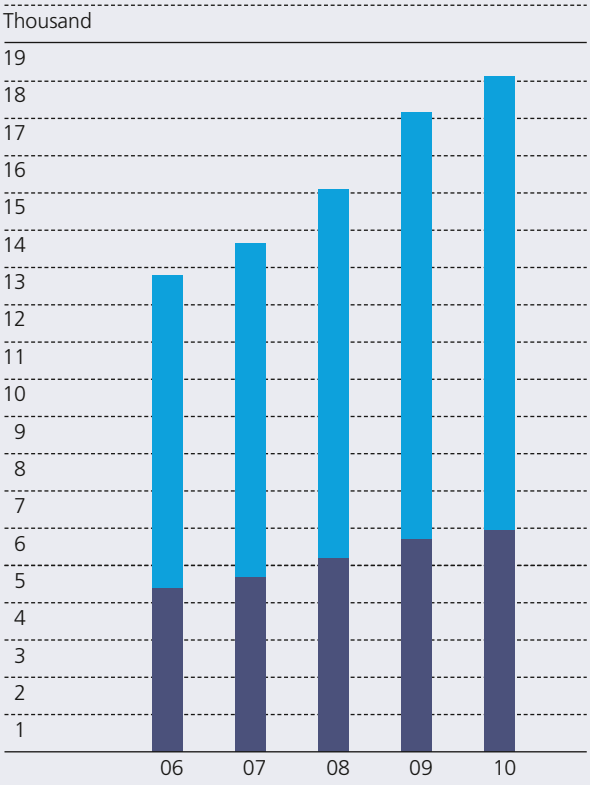
The dwindling number of young students opting to study mathematics and science, coupled with the rising demand for junior research scientists, calls for a more proactive approach to recruitment even at high school level. The Fraunhofer-Gesellschaft's answer is the Fraunhofer Talent School, which enables young people to work on current topics of interest together with the organization's scientists, thus helping them to gain an insight into the world of research. Over the last three years, some 1000 teenagers participated in the three-day workshops offered at the institutes. In addition to the Bavarian Junior Academy in Erlangen and the European Talent Academy in Lindau, the Fraunhofer-Gesellschaft supports long-standing events such as the Girls' Day in order to arouse school children's interest in studying mathematics, IT, natural sciences and technology.

One of the Fraunhofer-Gesellschaft's main tasks is to promote young scientists. To this end, the Fraunhofer Attract development program offers independent researchers an opportunity to test and hone their ideas at Fraunhofer, making use of the institutes' optimally equipped labs to develop market-oriented products. The program assists Fraunhofer in the competition for talented young people with innovative ideas, thus furthering the development of new competencies with the potential for tapping new areas of business. After three years' experience with Fraunhofer Attract, the Executive Board evaluated the program in 2010 – with positive results. Thanks to Fraunhofer Attract, the organization was able to recruit excellent scientists from renowned international institutes and from industry. The above-average share of female scientists among the recruits also helped to boost the percentage of women in management positions at Fraunhofer. In this way, Fraunhofer Attract supports another central concern of the Fraunhofer-Gesellschaft's human resources policy, namely the targeted recruitment of women and support for them throughout their careers.

In the struggle to recruit and retain staff, factors that make the Fraunhofer-Gesellschaft an attractive employer include personalized career development, a comprehensive program of further training and, in particular, management training options. In order to promote succession planning and groom potential candidates for senior management positions at the institutes, the organization has put in place and continues to expand the so-called Vintage Class. This program currently comprises 18 members, who are chosen by directors of the Fraunhofer Institutes and an internal panel. The candidates receive support in the shape of tailor-made training programs, postings abroad or participation in MBA programs. Above and beyond this, the participants also enjoy access to a think-tank consisting of the closely knit network of members of the Fraunhofer-Gesellschaft.

In the international race to recruit excellent scientists, the ability to offer attractive remuneration packages – especially ones with variable salary components – is a key criterion in addition to providing optimal working conditions. Since the introduction of the new wage agreement for public-sector workers (LeistungsTV-Bund), it has been possible for the salaries of the Fraunhofer-Gesellschaft staff employed under collective bargaining agreements to contain an additional variable component. However, owing to the limited size of this component, this represents merely a first step along the path towards truly performance-based remuneration. The Fraunhofer-Gesellschaft's funding bodies initially granted it the dispensation to pay allowances and bonuses to its scientific and quasi-scientific staff for a limited period only. This time limitation was rescinded in 2010, a long overdue decision that was welcomed by the Fraunhofer-Gesellschaft.

Growth in the Fraunhofer-Gesellschaft's workforce 2006–2010



	2006	2007	2008	2009	2010
■	8390	8950	9900	11,440	12,190
■	4380	4680	5190	5710	5940
=	**12,770**	**13,630**	**15,090**	**17,150**	**18,130**

■ Permanent staff
■ Temporary staff

The debate surrounding the rescission of this time limitation did not, however, lead to any greater freedom for the organization in the employment of staff who are exempt from the collective bargaining agreements – something that was sorely missed. More needs to be done here in order to make scientific institutions more competitive vis-à-vis industry. In particular, the possible additional remuneration payable to managers below the level of institute director is too low compared with the financial incentives offered for comparable positions in industry.

The Fraunhofer-Gesellschaft still has no possibility at all of paying bonuses to administrative staff. This inability to reward outstanding performance is leading to grave imbalances. In order to recruit talented young staff and managers and to ensure that their expertise is retained, the Fraunhofer-Gesellschaft must be able to offer competitive remuneration, which is why a permanent dispensation for a corresponding bonus system is required from the funding bodies for the administrative sector too.

Apart from the challenges of recruiting new personnel and offering optimal working conditions, the Fraunhofer-Gesellschaft also has to respond to the rapidly changing requirements of the environment in which it operates. Academic research is increasingly becoming more globalized, more dynamic and more closely intermeshed. New fields of enterprise are arising that call for innovative skills and profiles on the part of both the organization itself and its staff. With this in mind, the Fraunhofer-Gesellschaft launched a reorganization project entitled "move – People Make the Future". The focus of the project was on analyzing the structures, capacities and action areas in the field of human resources and realigning them with the new requirements identified. As a result, the organization's human resources strategy was more closely linked to its research and finance strategy so as to be better equipped to tackle the challenges of the future.

Risks and risk management

To carry out its mandate as an applied research organization, Fraunhofer takes calculated risks in order to create innovations that will benefit both the economy and society at large. The organization's risk management system is designed to identify existing and potential risks at an early stage and to manage them by means of appropriate measures in such way that they either do not materialize at all or do not have consequences that could jeopardize the fulfillment of Fraunhofer's mission in accordance with its statutes or its ability to meet its own business objectives.

The central departments at headquarters are responsible for risk management. Within their respective spheres of competence, they are tasked with monitoring and controlling all risks which, in terms of their effects and the potential damage they might cause, are of relevance to the Fraunhofer-Gesellschaft as a whole. The decentralized risk management processes at institute level are integrated with the headquarters' risk management function through the reporting channels to the central departments. The central departments inform the Executive Board of risks via the existing reporting channels – both routinely and on an ad-hoc basis. The Fraunhofer-Gesellschaft supplements these activities by preparing an annual risk report based on the results of an independent expert survey.

The Fraunhofer-Gesellschaft has also compiled a risk management manual that describes the risk management process and lays down general rules for preventive and corrective action on the part of the departments concerned. The Fraunhofer-Gesellschaft understands "risk" to mean all internally and externally generated events and developments that might jeopardize the fulfillment of its business objectives. In addition to direct financial risks such as institute budget deficits or unrecoverable payments, this definition of risk also includes qualitative risks such as loss of reputation or losing ground as an attractive employer.

Business risks include those arising out of changes in the political, legal and economic framework of applied research. The focus is on safeguarding the Fraunhofer model and the organization's competitive position.

Political decisions could affect the Fraunhofer-Gesellschaft financially, for instance through a reduction in planned funding contributions or restrictions placed on transferring unused portions of the previous year's funding. Under the Pact for Research and Innovation, which provides for an annual 5-percent increase in base funding, Fraunhofer currently enjoys planning certainty in the medium term.

As a non-profit organization and beneficiary of public funds, the Fraunhofer-Gesellschaft is also subject to federal and *Länder* government regulations and wider EU legislation. The organization counters changes in its regulatory framework conditions through the ongoing development of the Fraunhofer model. For example, it adapted its cost accounting system to ensure that, in line with the requirements of the EU framework for research, development and innovation, project research for industry and commerce is not cross-subsidized by non-commercial activities funded by the public sector. With public-sector funding, amendments to, or a disadvantageous interpretation of, the funding guidelines in respect of the reimbursement of costs could lead to a drop in income. Through regular audits and continuous improvements in close cooperation with the funding agencies, the Fraunhofer-Gesellschaft ensures that its cost accounting system meets all the relevant requirements and works hard to ensure that the basis for its calculations is fully recognized at both national and European level.

The Fraunhofer-Gesellschaft counters the risk of strategic misjudgments through the targeted further development of its research portfolio. Tried-and-tested strategy processes allow a permanent feedback loop with the market by integrating direct market participants, for instance via technology audits and boards of trustees. The organization's well-diversified research portfolio allows it to spread its risks during recessionary phases. The management and control system tracks the number of contracts in progress and their stage of fulfillment, and extrapolates the data to ensure that funding gaps are identified early on and suitable adjustments made.

Financial risks comprise risks that are rooted in the non-profit association's financial activities. In addition to the assets of the non-profit association, the Fraunhofer-Gesellschaft also manages the special license-fee revenue reserve, which is invested in medium- to long-term interest-bearing securities and is therefore exposed to capital market risk. The Fraunhofer-Gesellschaft's assets are invested in low-risk financial instruments. Risks are measured and controlled in real time, thus enabling the organization to respond rapidly to changes in market conditions.

Fraunhofer also channels its research results, such as patents, into existing companies or ones it has set up itself in order to generate cash flows for the organization. This may involve subsequently disposing of equity investments or, where appropriate, further developing technologies for the company as part of research contracts. The performance of these investments is closely monitored by means of an established investment controlling process.

Continual monitoring of prefinancing and accounts receivable, coupled with effective dunning and contractually agreed payment terms, help to minimize credit risk, which essentially relates to project prefinancing and unrecoverable payments.

Potential taxation risks include the Fraunhofer-Gesellschaft or parts of its organization being deprived, for their operational activities, of the status of a non-profit organization or a business entity. The Fraunhofer-Gesellschaft counters this risk by proactively managing its activities to comply with the pertinent laws governing non-profit organizations and value-added taxation. It also maintains a close dialog with the responsible tax authorities so as to keep abreast of potential changes in the legal framework.

Operational risks include the risk of losses incurred as a result of the unsuitability or failure of internal processes, people and systems, or due to external events. The extent to which Fraunhofer is able to preserve and augment its research capacity depends on its ability to recruit highly qualified research scientists and encourage them to stay with the organization. Fraunhofer's already very favorable reputation in the employment markets is reinforced by personnel marketing activities. Fraunhofer is also active on the political front, campaigning for the right to offer more flexible compensation packages.

Fraunhofer depends extensively on a reliable, secure IT infrastructure to provide research services. As the centralized provision of IT services becomes more and more the norm, risk management requirements in respect of such services are changing. Risks relating to IT are limited through specific measures, which are also set out in a binding IT security manual.

Through its contract research projects, the Fraunhofer-Gesellschaft is exposed to liability and performance risks such as product liability and warranty. It manages these through suitable liability restriction clauses in its standard terms and conditions of business and in its standard contracts, as well as through a multi-tier approval process based on competent legal advice. By setting up a Legal Corporate Governance department, Fraunhofer has reinforced its proactive approach to legal issues.

The overall assessment of the Fraunhofer-Gesellschaft's risk situation contains no notable events that could strongly jeopardize the organization's future performance.

Technology transfer

Innovations are seen as drivers of economic growth and prosperity. An idea becomes an innovation only after it has found a practical application. The Fraunhofer-Gesellschaft seeks to expedite the transformation of innovative ideas into marketable products by encouraging the close international integration of science and industry, patenting valuable technologies, and participating in promising companies and spin-offs.

Patents and licenses

The Fraunhofer-Gesellschaft is one of the most important sources of patent applications in Germany. In 2010, the Fraunhofer Institutes applied for patents for 695 new inventions – more than ever before. Of these, 505 were filed with the German Patent and Trade Mark Office. The number of active rights and patent applications increased to over 5450, with a total of more than 2460 patents having been granted for the German market at year end 2010. The number of active exploitation contracts rose to over 2400.

Given the dynamic nature of technological progress, the ability to innovate quickly has become a decisive competitive factor. Short, expensive innovation cycles mean that technical solutions have to be made available as fast as possible. In order to safeguard a competitive lead that is based on innovation, the technical solutions have to be protected with patents, which allow solutions to be turned into commercially viable goods.

To ensure that its know-how and industrial property rights are utilized and exploited in a consistent manner, the Fraunhofer-Gesellschaft has implemented a system of results-oriented intellectual property (IP) management. The main instrument in this system is a specific portfolio technique that enables the institutes to structure their current patent portfolios to reflect marketability and utilization aspects. Portfolio analyses allow them to visualize and evaluate the positioning of technologies in different areas of business. In the case of technologies with a high utilization potential, this approach actively opens up new channels outside of contract research. Business and patent databases are being combed to find potential users for particular technologies.

Fraunhofer Future Foundation

In order to create and preserve intellectual property (IP) for the organization in the long run, the rapid implementation of technological innovations through contract research that is so typical of Fraunhofer needs to be supplemented by pre-competitive research in selected promising fields of technology, backed by long-term funding. The increasing importance of intellectual property was the trigger for establishing the Fraunhofer Future Foundation (Fraunhofer-Zukunftsstiftung). This non-profit foundation is funded by the proceeds of Fraunhofer's mp3 property rights. The lion's share of these earnings is intended for investment in IP-relevant pre-competitive research so as to generate further license income in the long run. The non-profit foundation was already endowed with €100 million in capital in recent years; in the financial year 2010, the Fraunhofer-Gesellschaft transferred a further €50 million to the foundation's spending capital. The Fraunhofer Future Foundation promotes selected research projects that look likely to be of special relevance to the market and to generate strong demand, and supports the creation of high-value patent portfolios. The Fraunhofer Future Foundation has already succeeded in launching seven promising research projects.

Subsidiaries, shareholdings and spin-offs

Fraunhofer's three subsidiaries continued to perform well in the financial year 2010.

Fraunhofer USA, Inc., is a wholly owned, non-profit subsidiary of the Fraunhofer-Gesellschaft, with headquarters in Plymouth, Michigan. The chief motivation for this engagement in the United States is to intensify scientific expertise by cooperating with internationally renowned research centers, and to strengthen the Fraunhofer R&D portfolio. The U.S. American market represents an important benchmark for the Fraunhofer-Gesellschaft.

At the present time, there are six Fraunhofer Centers operating as research and development units under the auspices of Fraunhofer USA. Each works in close collaboration with one or more of the Fraunhofer Institutes in Germany on development projects for industrial firms, public-sector clients and academic institutions.

Fraunhofer USA, Inc., posted provisional total revenues of US$40 million for 2010, roughly the same as the previous year. With total revenues of US$20 million, the Fraunhofer Center for Molecular Biotechnology (CMB), Delaware, is the best-performing Fraunhofer Center in the USA, followed by the Fraunhofer Center for Sustainable Energy Systems (CSE), Massachusetts, with total revenues of US$4 million.

The organization's Austrian subsidiary, Fraunhofer Austria Research GmbH, Vienna, commenced operations in April 2009 and completed its first full financial year in 2010. The Fraunhofer-Gesellschaft is the sole owner of this non-profit, limited-liability company, which was set up for the exclusive purpose of directly promoting applied research and science. The legal entity Fraunhofer Austria Research GmbH comprises the Austrian activities of the Fraunhofer Institute for Manufacturing Engineering and Automation IPA and the Fraunhofer Institute for Computer Graphics Research IGD in two separate units. The company has sites in Vienna (for the Production Management and Logistics unit) and Graz (for the Visual Computing unit).

Together with the Trade Association of South Tyrol, the Fraunhofer-Gesellschaft set up a third subsidiary in December 2009: the non-profit Fraunhofer Italia Research Konsortialgesellschaft mbH with headquarters in Bolzano started operations in January 2010 upon its entry in the local commercial register. The Fraunhofer-Gesellschaft holds a 99 percent stake in the new Italian subsidiary, which functions as legal representative for the legally dependent centers located in Italy, including the Fraunhofer Innovation Engineering Center (IEC), which the government of the state of South Tyrol is providing with base funding for an initial period of four years.

Due to the immaterial effect of the revenues generated by the subsidiaries on the organization's net assets, financial situation and operating results, the Fraunhofer-Gesellschaft does not draw up consolidated financial statements.

At the balance sheet date, the Fraunhofer-Gesellschaft held equity investments in 81 companies in a wide variety of sectors with a total carrying amount of €4.8 million. In the financial year 2010, the Fraunhofer-Gesellschaft acquired shares in the equity capital of twelve spin-off companies.

Spin-off companies are rapidly developing into important R&D partners for the Fraunhofer-Gesellschaft and represent one of the main avenues through which it exploits its industrial property rights. The Fraunhofer-Gesellschaft generally contributes its know-how, in return acquiring a corresponding minority share in the equity of the new company. As well as generating return from the technology transfer, spin-offs also help to promote entrepreneurial thinking and the establishment of cooperative networks with businesses operating in the same sphere as the respective Fraunhofer Institutes. More-

over, spin-offs are of great economic benefit to the national economy as they lead to the creation of new jobs and enhance competitiveness through product innovation.

In 2010, the Fraunhofer-Gesellschaft provided support for 37 spin-off projects, and helped establish 9 companies.

Since the Fraunhofer-Gesellschaft first launched its support program for spin-offs, known as "FFE – Fraunhofer Fosters Entrepreneurship", 80 teams have received help in starting up their own companies. In 2010, funds totaling €0.7 million were granted to five new projects.

All in all, the Fraunhofer-Gesellschaft is confident that it will be able to go on expanding its spin-off activities in the medium term. "FFM – Fraunhofer Fosters Management", another of the Fraunhofer-Gesellschaft's programs, continues to be very well received by first-time entrepreneurs, with more than 30 projects already being supported. The goal of this program, which has been extended until 2012, is to strengthen the management skills of the new executives and guide them through the highly critical early phase of their business. The German Federal Ministry of Education and Research (BMBF) has allocated funding of €2.8 million to this program.

International activities

The Fraunhofer-Gesellschaft again expanded its international activities in 2010, with cooperative ventures with partners of excellence and the establishment of units worldwide forming the main thrust of this commitment. Through its representative offices abroad, the Fraunhofer-Gesellschaft enjoys direct contact with the regions of greatest importance to present and future scientific progress and economic development.

In the financial year 2010, the organization's project revenue from international partners (excluding license-fee revenue) amounted to €175 million, €21 million of which comprised revenues from Fraunhofer's foreign subsidiaries.

Revenue from collaborative projects with European industry and as a participant in joint research projects funded at European level increased by almost 10 percent to €124 million. The Fraunhofer-Gesellschaft generated revenue of €59 million from projects with European industry (outside Germany), thus posting growth of 21 percent. Project revenue from EU-funded programs amounted to €65 million, which was on a par with the previous year.

The Associação Fraunhofer Portugal Research performed successfully in the financial year 2010, again expanding both its research activities and customer base. This center acts as the legal representative for the legally dependent centers located in Portugal, such as the Fraunhofer Center for Assistive Information and Communication Solutions (AICOS) in Porto. The focus of this Fraunhofer center's research activities lies on developing ideas and solutions aimed at improving access to information technology for wide sectors of the public.

International revenue of the Fraunhofer-Gesellschaft 2006–2010

In Hungary, in May 2010, the Fraunhofer Institute for Manufacturing Engineering and Automation IPA – in conjunction with the Production Management and Logistics unit of Fraunhofer Austria Research GmbH and the Computer and Automation Research Institute of the Hungarian Academy of Sciences – established the Fraunhofer Project Center for Production Management and Informatics, Budapest. The Project Center offers research and consulting services for manufacturing companies, focusing for example on operations planning and optimization, and the tried-and-tested application of innovative information and communication technologies.

Collaboration between the Fraunhofer-Gesellschaft and the Association of Carnot institutes (AiCarnot), one of the leading research and technology organizations in France, was successfully expanded in the financial year 2010. The 19 projects comprised in the "Programme Inter Carnot Fraunhofer (PICF)" are progressing in a very promising manner and have already borne fruit in the shape of joint publications, patent applications and initial industrial revenues.

Under the auspices of the EU-funded network project AERTOs, the Fraunhofer-Gesellschaft launched a collaboration program in 2010 together with other well-known European contract-research organizations. The program, which focuses on the fields of off-shore wind energy and energy-efficient building, is intended to pave the way for a strategic, long-term partnership between the organizations in topics of key interest to Europe. In the field of off-shore wind energy, for instance, the experience gained by Dutch and Norwegian research organizations through oil and gas exploration is being combined with Fraunhofer's expertise in on-shore wind energy.

The Fraunhofer-Gesellschaft's revenue from projects in the United States amounted to €30 million in the financial year 2010, of which €20 million stemmed from our subsidiary Fraunhofer USA, Inc. The latter was thus able to build on its already strong position within the American innovation system. Fraunhofer USA's successful contribution toward developing promising innovations was rewarded in 2010 with the Innovation Award of the North American Association of University Research Parks. This award was due in no small part to the recent successes of the Fraunhofer Center for Molecular Biotechnology (CMB) in Delaware. The Fraunhofer Center has made further progress with its development and production platform for swine flu and avian flu vaccines. In September 2010, the Center's first approval request was granted by the U.S. Food and Drug Administration (FDA), paving the way for human testing of the newly developed vaccines in clinical trials.

In Asia, demand for Fraunhofer research services surged, enabling the Fraunhofer-Gesellschaft to profit from the region's above-average economic growth. The Fraunhofer-Gesellschaft generated revenues of €17 million, thus achieving a year-on-year increase of 33 percent. Above all else, rising demand is discernible for technological innovations in the energy and environment fields. This prompted the Fraunhofer-Gesellschaft, which is already firmly committed in Asia to energy-efficient building and renewable energy, to expand its portfolio to include sustainable water infrastructure systems, particularly in China.

With the help of financing from Singapore's Media Development Agency, the Fraunhofer Institute for Computer Graphics Research IGD set up the Fraunhofer Project Center for Interactive Digital Media at Nanyang Technological University NTU, the country's leading technical university. The research activities of the Project Center, which has been established for an initial period of five years, will focus on interactive digital media (IDM) and include the development of software solutions for state-of-the-art Internet-enabled mobile phones.

The Fraunhofer-Gesellschaft is also moving beyond regions such as Europe, the United States and Asia – to which it has traditionally accorded strategic priority – and strengthening its international commitment in South America as well. The Fraunhofer Center for Systems Biotechnology is the first research center to be set up under the auspices of Fraunhofer Chile Research, a foundation established in 2009. In collaboration with its Chilean partners, the Fraunhofer Institute for Molecular Biology and Applied Ecology IME commenced its research activities there in early January 2011. Goals of the new center include developing fast-acting tests for the early identification of fish diseases as well as corresponding vaccines designed to boost aquaculture yields and ensure product safety. What is more, Fraunhofer researchers will be working together with specialists from the university in Talca on nanotechnologies that are intended to help remove toxins such as pesticide residues from drinking water.

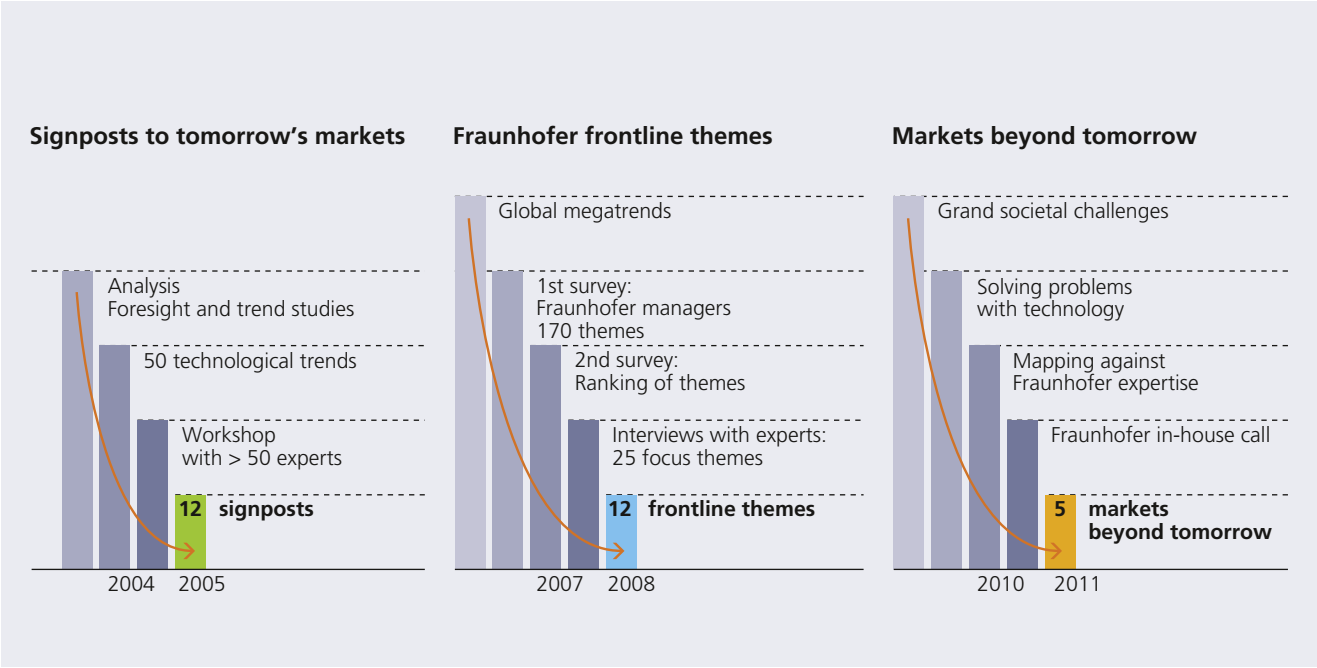
Since 2010, innovation "made by Fraunhofer" has also been available to customers in Australia. The Fraunhofer Institute for Experimental Software Engineering IESE set up the Fraunhofer Project Center for Transport and Logistics at the National ICT Australia (NICTA) in Sydney, a top research center in the field of information and communication technologies. The focal areas of research carried out by this new international project group will include improving the efficiency of supply chains through transportation management and intelligent infrastructures.

Strategic development

Innovation is regarded as the key driver of economic growth in Germany and international markets, and a portfolio of innovative services, coupled with a forward-looking strategy, counts among the Fraunhofer-Gesellschaft's main strengths. This entails interpreting incipient macro trends in society, integrating innovative research and identifying the relevant markets.

The Fraunhofer-Gesellschaft is constantly fine-tuning its broad R&D portfolio to meet the latest market requirements. In order to support the research policy goals of the follow-up Pact for Research and Innovation, the Fraunhofer-Gesellschaft has also undertaken to make an active contribution to the development of the education and research system. This requires strategic coordination at different levels – namely at institute, group and organization level. These activities interact with and influence one another. The Fraunhofer Institutes work in close two-way contact with the contract-research market and are thus able to adapt their strategies to meet current market demand. For this purpose, they have recourse to a standardized strategy planning process.

At the next level, the Fraunhofer Groups form a communication platform that supports the coordinated strategic development of institutes operating in the same field. And at organization level, the Executive Board regularly initiates processes that bundle the expertise of several institutes in system projects aimed at meeting the challenges of the future. The solutions sought take the form of specific projects that unite diverse technologies and disciplines in a flexible, problem-driven manner. This process showcases one of the Fraunhofer-Gesellschaft's key strengths: its ability to efficiently combine different core competences under one roof when needed.



During the last strategic planning cycle, fields of research were identified that are set to play a key role in tackling problems of central concern to society – including climate change, the depletion of natural resources, and healthcare. Proceeding from this initial selection, the Fraunhofer-Gesellschaft derived its twelve "frontline themes" through which it intends to make an active contribution toward making our lives healthier, safer and easier.

This flowed into the current process entitled "Markets beyond tomorrow", in which global challenges are being analyzed and topics of relevance identified with the aid of technology foresight methods and the able support of external experts. Consequently, in 2011 Fraunhofer will intensify its work on topics such as "affordable healthcare", "life cycle production" and "low-loss generation, distribution and utilization of electrical energy".

In order to develop future technologies in these areas, the Fraunhofer-Gesellschaft will boost its pre-competitive research, funding collaborative projects with amounts of up to €5 million per project. Examples include new sterilization techniques to dramatically reduce the risk of postoperative infections, and groundbreaking technologies to recover recyclable materials during the production cycle by isolating and reprocessing even very small mass-flow fractions. The Fraunhofer-Gesellschaft will also bundle and enhance its expertise in solar thermal power plant design in order to play an active role in promising initiatives like DESERTEC, a concept that aims to promote the generation of clean electrical energy in desert regions. By focusing on these "markets beyond tomorrow", Fraunhofer is taking a proactive approach that aims to deliver research results geared to the creation of new markets for solutions to global challenges.

Above and beyond this, the Fraunhofer-Gesellschaft has further reinforced its commitment in the form of strategic initiatives. Cross-institute initiatives serve to shape current and future fields holding potential for system research. These currently include not only the Electromobility System Research project, but especially the two topics of renewable energy systems and cell-free biotechnology.

Resource-conserving mobility and logistics require electric-powered vehicles. In view of the exploding volume of traffic worldwide, rising emissions and the growing scarcity of crude oil reserves, electromobility is a highly promising area of research. The Electromobility System Research (FSEM) project combines the expertise of 34 institutes along the entire electromobility value chain, and takes a systemic approach to development. What is special about the approach being taken by Fraunhofer is that all stages of added value in the electromobility chain are being appraised and developed so that they slot into each other seamlessly. The entire system is viewed holistically – starting with power generation, its transmission and distribution via the grid, the interfaces between the power grid and the vehicles, and the storage of energy, all the way through to innovative vehicle design concepts coupled with a new energy infrastructure and new utilization and billing systems. This project, which is currently being financed by the German Federal Ministry of Education and Research (BMBF) with €36 million in funds from the economic stimulus program II, is set to run for two years until mid-2011 and is divided into four main content areas and various sub-projects. In order to optimize market penetration, external consultants from industry are assisting in overall coordination of the project. The Fraunhofer-Gesellschaft is convinced that, on the basis of the project results and in cooperation with its partners from industry, it can help to shape and expedite the necessary technological shift toward electromobility, which represents one component of the broader "all-electric economy".

Another example of a major project being steered with Fraunhofer system research is "cell-free biotechnology". As part of the BMBF's new strategy process entitled Biotechnology 2020+, Fraunhofer is tapping a field with high innovation potential. In all industrialized countries, cell-free biotechnology is viewed as one of the most promising technologies for replacing high-end chemicals in an industry that is still predominantly petroleum-based. But there is also huge potential for new biotechnology processes in the field of health research. While cell-free biotechnology is seen as a mainly engineering-driven approach, an understanding of the biological processes derived from systems biology is of fundamental importance. With the active support of eight Fraunhofer Institutes from the Life Sciences, Production, Materials and Components – MATERIALS, and Microelectronics Groups, the Fraunhofer-Gesellschaft elaborated a plan for developing an "industrial cell" for cell-free bioproduction. In this pre-competitive research project, methods and processes are being implemented that are designed to overcome – at crucial points – the obstacles facing cell-free bioproduction in terms of product diversity, durability and scaling. The Executive Board of the Fraunhofer-Gesellschaft will lend its support to the BMBF's strategic process "Biotechnology 2020+ – Next-generation biotechnology processes" within the framework of Fraunhofer's system research, and coordinate corresponding projects within the organization.

Securing our future supplies of renewable energy is considered to be one of the most important social, economic and political challenges we face today. Energy efficiency and the shift to renewable energy are the key to sustainable climate protection. Meeting our energy demands calls for the use of fuel cells, and wind and solar energy – in combination with intelligent energy management. With its broad array of expertise, Fraunhofer research is particularly qualified to create the technological foundations for saving energy and tapping new energy sources. With a staff of more than 1500, the institutes of the Fraunhofer Energy Alliance can offer a full complement

of R&D services, from materials research through to macroeconomic system analysis. The Alliance is developing commercially attractive solutions for its clients in the fields of renewable energy, energy efficiency, smart power grids, buildings and components as well as storage media and micro power engineering.

In close cooperation with industry and the energy sector, the Fraunhofer Alliance is working to build technologies for generating electricity, heat and fuel, focusing strongly on photovoltaics, solar heat, solar thermal power plants, biomass, biogenic gases and fuel substitutes as well as wind power. The institutes involved are developing the new materials, components and manufacturing techniques for this purpose, as well as the corresponding systems technology. A dedicated Fraunhofer network has been set up to carry out research into wind energy.

The efficient provision and utilization of energy is essential not just in order to protect the global environment and climate, but because it can also help businesses and consumers to save money. The main priorities of Fraunhofer research in this arena are stationary systems for the decentralized supply and conversion of energy, for instance through co-generation, cooling technology, thermal energy storage, electrochemical energy conversion, hydrogen technology and fuel cells, liquid and gas fuels, and biotechnology.

Around one-third of the energy consumed in Germany is used to heat buildings, which is why efficient air-conditioning systems are a top priority. Fraunhofer is working on new building materials, building facades and shading systems for low-energy homes. Through analyses and simulations of complex building systems and facilities, the Fraunhofer Institutes are underpinning the development of innovative operation strategies.

When it comes to smart power grids, Fraunhofer's expertise lies mainly in planning, building and operating decentralized energy systems. This includes methods and algorithms for control technology and simulation tools. Control and energy management systems are put through their paces in test facilities and demonstration projects.

Many of the new devices serving to make our society more and more mobile require an off-grid power source. This means light, compact and affordable power supply units that offer adequate energy and power density. Innovative energy converters are also needed for wireless test and measurement instruments employed specifically in transportation and environmental engineering and by industry in general. Fraunhofer helps its customers to develop suitable energy storage devices including micro fuels cells, lithium cells and supercaps.

Outlook

Following the rapid recovery of the German economy in 2010, forecasts point to a continuation of the upswing. However, it is impossible at the moment to estimate what effects the devastating natural and nuclear disasters in Japan and the widespread unrest across northern Africa and the Middle East will have on the global economy. Thus far, experts expect to see a 2.3 percent rise in Germany's GDP in 2011, which would put the country's growth rate well above the forecast average for the eurozone.

Given this favorable economic trend and the currently high number of contracts in progress, the Fraunhofer-Gesellschaft expects to continue growing in 2011 and 2012, both in terms of revenues and earnings. In 2011, Fraunhofer's total business volume is expected to grow to over €1.8 billion. Given that research and development are vital to Germany's economic growth and competitiveness, the Fraunhofer-Gesellschaft expects industrial revenue to remain stable and revenue from public-sector projects to increase. Indeed, the federal government has announced its intention to invest a further €6 billion in R&D during its current term of office.

The international struggle for talented workers and market leadership – especially technology leadership – is set to intensify. Thanks to its unflagging strategic focus on future-oriented fields of research, its well-structured human resources and technological capacities, and not least its proven innovative strength, the Fraunhofer-Gesellschaft is superbly placed to tackle new challenges.

Its success of recent years provides the Fraunhofer-Gesellschaft with the motivation to continue systematically building up its research expertise so that it remains in a position to fulfill its central objective of providing research dedicated to the future and making a contribution to Germany's growth and prosperity.

The Executive Board would like to thank the organization's members, friends, patrons, and most of all its staff for their support and dedicated work during the past year.

Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V.

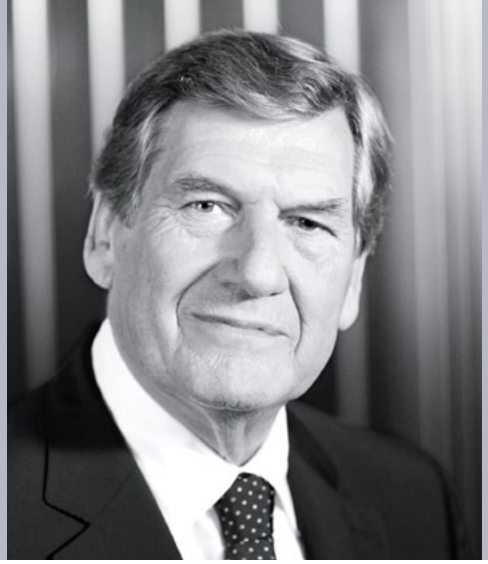
The Executive Board

Prof. Dr. Hans-Jörg Bullinger
Prof. Dr. Ulrich Buller
Prof. (Univ. Stellenbosch) Dr. Alfred Gossner

REPORT OF THE SENATE ON THE FINANCIAL YEAR 2010

The year 2010 was marked by a strong recovery in the economy. The markets pulled out of the recession faster than expected, generating opportunities in particular for those companies that had put their money on new products, and efficient processes and structures during the economic crisis of 2008 and 2009. As a result of this turn toward innovation, the Fraunhofer-Gesellschaft, Europe's leading provider of research services, expanded its portfolio and was able to continue growing in 2010. The organization again presented a healthy set of financial statements last year, receiving an unqualified audit certificate from its auditors.

In 2010, the Senate fulfilled the tasks it is charged with under the statutes of the Fraunhofer-Gesellschaft, convening twice during the financial year, on May 19, 2010, in Leipzig and October 19, 2010, in Stuttgart. In the course of these meetings, the Senate approved the annual financial statements and the financial planning in accordance with the statutes of the Fraunhofer-Gesellschaft, and discussed the organization's risk management and investment practices, the status quo and changes at the units, and the principles of the Fraunhofer-Gesellschaft's science and research policy.



The main decisions taken in accordance with the statutes concerned structural changes:

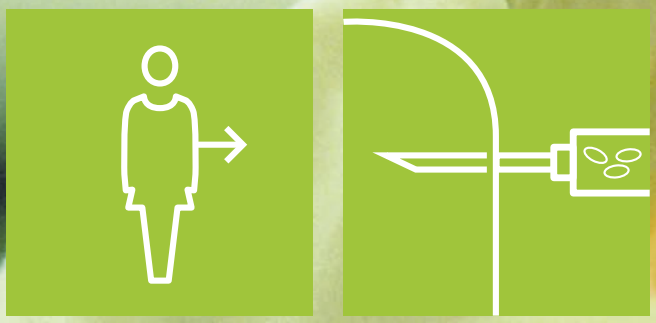
- The Munich branch of the Fraunhofer Institute for Reliability and Microintegration IZM was given independent status and, since July 1, 2010, has been working autonomously as the Fraunhofer Research Institution for Modular Solid State Technologies EMFT under acting director Prof. Dr. Karlheinz Bock.
- The Senate approved the increase in Fraunhofer-Gesellschaft's stake in MEMS Foundry Itzehoe GmbH to 49 percent through the acquisition of additional shares of up to €18,250 in the latter's equity capital.
- On January 1, 2011, the independent Fraunhofer Research Institution for Electronic Nano Systems ENAS in Chemnitz became the Fraunhofer Institute for Electronic Nano Systems ENAS under director Prof. Dr. Thomas Geßner.

Following the appointment of Prof. Dr. Marion Schick, Senior Vice President Human Resources and Legal Affairs, to the post of Minister of Education, Youth and Sports of the state of Baden-Württemberg in February 2010, it was necessary to nominate her successor on the Executive Board. After an intensive search for suitable candidates by the Senate Committee, the Senate elected a successor at the end of 2010. However, negotiations with the new Executive Board member were still in progress on December 31, 2010.

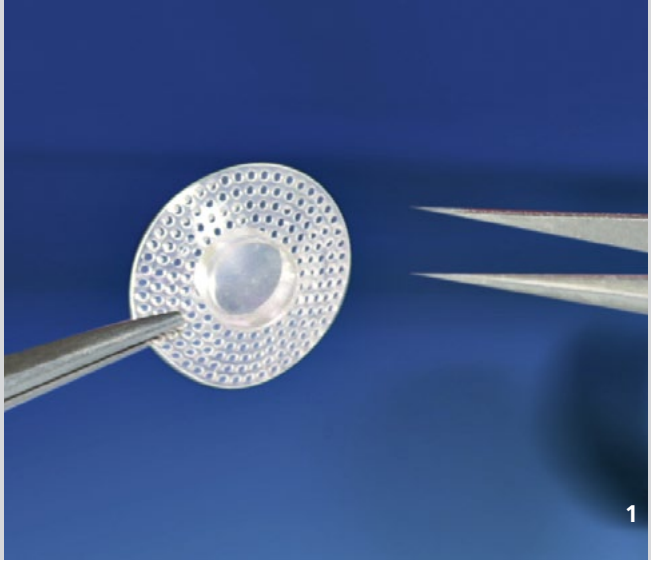
The Senate takes this opportunity to thank the entire staff of the Fraunhofer-Gesellschaft for their commitment and their highly successful work in the financial year 2010.

Prof. Dr.-Ing. Ekkehard D. Schulz
Chairman of the Senate of the Fraunhofer-Gesellschaft

REVIEW OF FRAUNHOFER RESEARCH



PROJECTS AND RESULTS 2010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PROJECTS AND RESULTS 2010

HEALTH

Research for eyesight 1
Joseph von Fraunhofer Prize

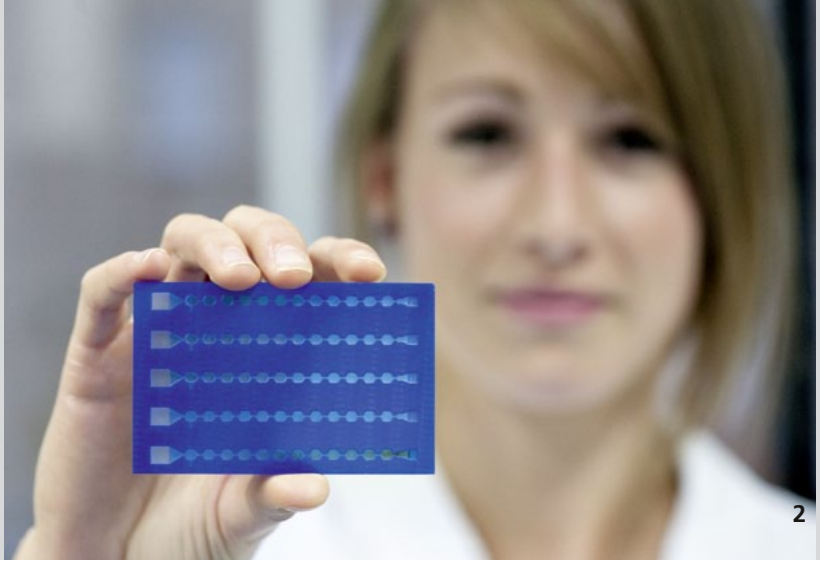
Damage to the cornea of the eye can lead to blindness, but a corneal transplant is often out of the question owing to a lack of available donors. In collaboration with project partners from the Department of Ophthalmology at the University Hospital Regensburg and the Technical Universities of Munich and Halle (Saale), Dr. Joachim Storsberg of the Fraunhofer Institute for Applied Polymer Research IAP developed a new idea for an artificial cornea. This biomimetic implant is manufactured from a substrate material to which local surface modifications are applied in order to obtain the required optical characteristics. The edges of the implant adhere to the surface of the eye, while the optically functional central area remains free of agglomerations of cells that might hamper vision. This artificial cornea sets new standards in ophthalmology, and was the reason its researcher was honored with the Joseph von Fraunhofer Prize 2010.

Fast-acting test for blood poisoning 2

A bacterial infection of the blood can quickly have fatal consequences as it has a direct effect on the entire body. A rapid diagnosis of blood poisoning is thus essential as it enables appropriate countermeasures to be taken without delay. In conjunction with the Fraunhofer spin-off Magna Diagnostics GmbH and with the support of the German Federal Ministry of Education and Research (BMBF), researchers at the Fraunhofer Institute for Cell Therapy and Immunology IZI are working on a solution. MinoLab is a diagnostic system that can provide results within just one hour, making it possible in many cases to start life-saving therapy.

Plaster with a built-in alarm

Self-adhesive wound dressings, commonly referred to by the brand name Band-Aid®, have been a truly beneficial development as a means of protecting minor wounds. But the healing process can be hampered if an infection develops underneath the dressing. Researchers at the Fraunhofer Research Institution for Modular Solid State Technologies EMFT have come up with a dressing that alerts the wearer to a developing infection by changing color. In this way, the dressing or bandage can be replaced in good time, thus speeding up the healing process.



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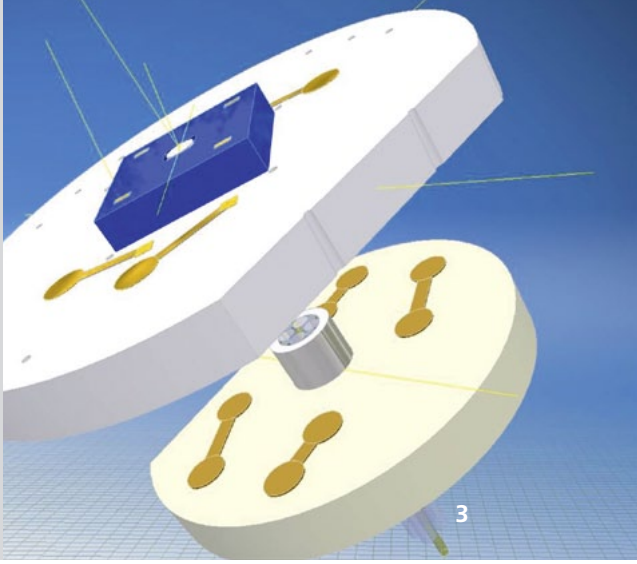

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Nano pores for sterile filtering

Sterile filtering is a good way of removing bacteria from liquids without boiling. If the pores are small enough, even viruses can be filtered out. But making filters that can trap all viruses is difficult. Researchers at the Fraunhofer Institute for Mechanics of Materials IWM in the eastern German city of Halle (Saale) have created a new generation of ceramic filter membranes with outstanding properties, including high flow rates, the ability to set the pore size exactly, a high level of mechanical stability and thus highly reliable filtering. Filters of this type have many promising applications in the field of biotechnology.

Endoscopic diagnosis of cancer 3

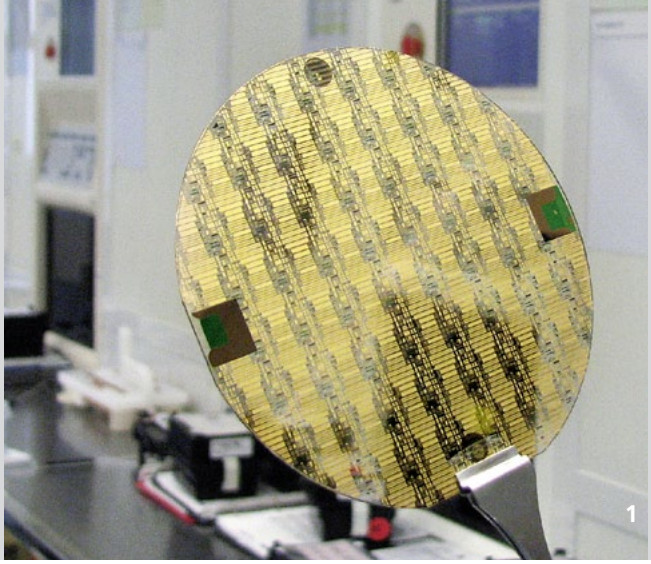
When there is a suspicion of a serious disease such as cancer, both the patient and the doctor want to know for certain as fast as possible. The Fraunhofer Institute for Photonic Microsystems IPMS has developed a technique that provides faster results than the conventional biopsy followed by analysis of the tissue sample in a medical laboratory. The researchers have developed a microscope head just a few millimeters in diameter which, attached to an endoscope, allows doctors to examine the relevant tissue in situ and thus arrive at a diagnosis without undue delay.

Temporary implants

If a patient is missing a piece of skull bone, after an accident for instance, surgeons often repair the gap with an implant. Researchers at the Fraunhofer Institute for Laser Technology ILT have now begun to utilize the rapid prototyping procedure they optimized for titanium implants with resorbable materials as well. The selective laser melting technique is used to create an individually tailored implant layer by layer. Once implanted, the porous material slowly degrades and is replaced by endogenous bone tissue, meaning that the implant never has to be replaced again. The burden on the patient from surgical procedures is thus comparatively low.

Nerve signals steer prosthetic hand

One of the dreams of medicine has always been to create a fully functional prosthetic replacement for the human hand. Now, the Project Group for Neurobotics at the Fraunhofer Institute for Biomedical Engineering IBMT has moved one step closer to achieving this goal. The focus of their research work is on a bidirectional interface between the prosthesis and the human nerve system. In 2009, as part of an international project, a corresponding electrode structure was implanted for the first time, enabling the patient to control a so-called cyberhand. What is more, electrical stimulation made sensory perception possible for the patient. This outstanding developmental achievement in the field of neuroprosthetics was honored with the 2010 SaarLB Science Prize.



COMMUNICATION

Small projector – high performance Hugo Geiger Prize

The miniaturization of optical and electronic structures is a wellspring of innovation. As part of his thesis work at the Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Marcel Sieler focused on the optical principle of an array projector, which combines a large number of regularly ordered micro-optic lenses in an ultra-thin component. He analyzed the system and developed initial prototypes, thus making a key contribution toward the genesis of new ultra-flat projection systems with interesting fields of application, e.g. for the dissemination of information, in 3-D measurement technology, and in lighting design. Sieler was awarded the Hugo Geiger Prize 2010 for his thesis.

Sensational new material 1

At the moment, hardly any other semiconductor material fascinates physicists as much as gallium nitride. Among other things, researchers plan to use this material to further enhance the performance of LEDs, laser diodes and wireless communications; it could also open up new perspectives in the field of electromobility. In cooperation with Ulm-based United Monolithic Semiconductors (UMS) GmbH, experts at the Fraunhofer Institute for Applied Solid State Physics IAF want to achieve a breakthrough for this versatile, but difficult-to-process, material, and have already begun far-reaching R&D activities in this field.

Rapid checking of videos

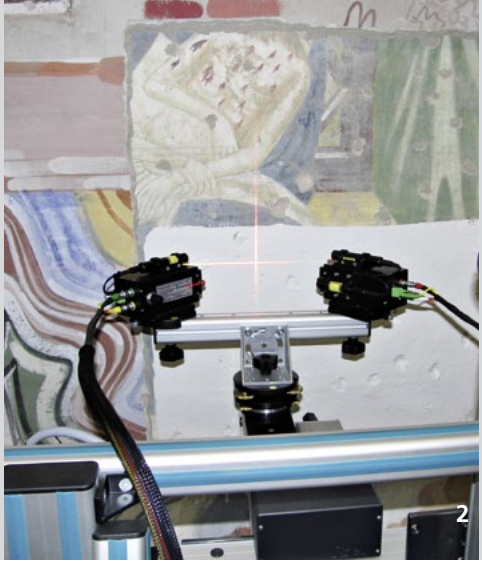
Video clips are growing in importance as a medium for entertainment and information, and anything that can simplify their production is thus more than welcome. Experts at the Fraunhofer Institute for Digital Media Technology IDMT have developed a program for automatic error and quality monitoring that will save producers an enormous amount of time when viewing video material. Another system enables the automatic classification of films, allowing video portals, for example, to offer their customers new search options.

Uncovering old masters 2

Thanks to their unique performance characteristics, terahertz scanners are finding ever more applications. The latest example: murals that have been painted over, in ancient churches for instance, can be made visible again without removing the top surface – which may be an equally valuable version of the same artwork. The contactless system was developed with German Federal Ministry of Education and Research (BMBF) funding in a cooperative effort between the Fraunhofer Institutes for Material and Beam Technology IWS and for Physical Measurement Techniques IPM together with other research partners.

A 3-D eye-catcher

Advertising has to catch your eye – that is what both ad agencies and sellers crave. The new posters developed by researchers at the Fraunhofer Institute for Physical Measurement Techniques IPM in cooperation with colleagues from the company RealEyes GmbH and the University of Kiel make this wish a reality. Thanks to a special manufacturing process, it is now possible to produce posters up to five meters in size that can be viewed in 3-D without the aid of special glasses.



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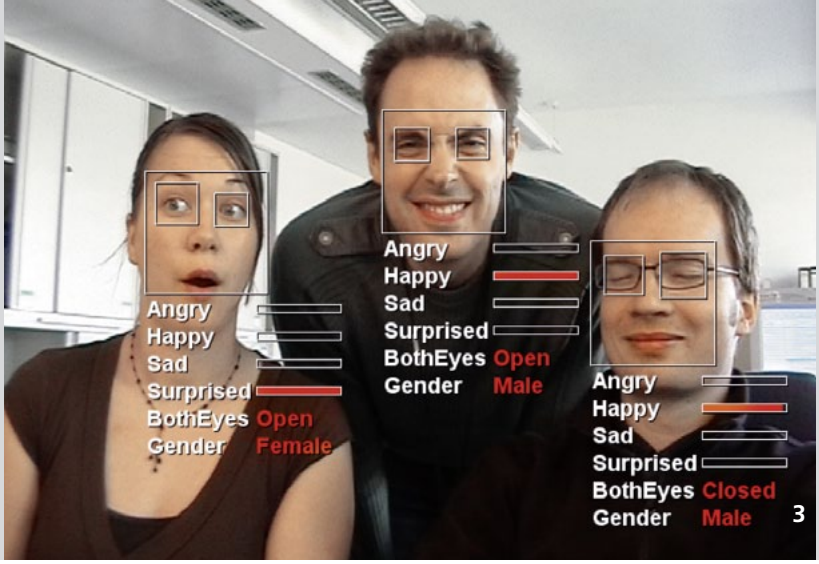


3

Although the principle behind the new posters is similar to that of lenticular images, the process used is much more sophisticated, accurate – and correspondingly more convincing. Given that the same amount of data is used as for an entire movie, observers can expect to experience seamless 3-D images from any direction.

What impact is my advertising having? 3

Of particular interest to advertising professionals is the emotional impact of their campaigns. The People Attract® system marketed by VISAPIX GmbH can help them gage this by recognizing the mood of people recorded on closed-circuit cameras. The system is based on the Shore™ software for detecting faces and facial expressions developed by the Fraunhofer Institute for Integrated Circuits IIS. It registers not only how long someone looks at an image, but also whether that person is a man or woman and what emotions they show. The real-time data generated by the system can be utilized to tailor advertising to fit particular target groups.

More fun with mobile television

The problem is familiar to anyone who uses a smart phone: the quality of reception determines whether your video sequences are seamless or jerky. Two recent developments can help here: the new Long Term Evolution standard for mobile network technology and the Multicore SVC Realtime Encoder developed at the Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institut, HHI. The latter analyzes the quality of the transmission path currently available and adapts the coding accordingly. As a result, the mobile phone always receives images of the best possible quality that can be displayed without annoying dropouts.

SECURITY

Secure ID cards

On November 1, 2010, a new national ID card in credit card format was launched in Germany. The data stored in its chip is protected by state-of-the-art cryptographic methods and transmitted to officially approved bodies in encrypted form only. The new ID card can also be used to authenticate the holder's identity in the Internet, e.g. during transactions with e-government sites or online retailers. Together with the German Federal Ministry of the Interior (BMI), the Fraunhofer Institutes for Open Communication Systems FOKUS and for Secure Information Technology SIT have set up a test and demonstration center for the new ID card in Berlin. The center serves as a contact point for companies and administrative bodies interested in the new ID card.

Packaging film keeps bacteria at bay

Meat is supposed to be fresh, and appetizing in both look and aroma – even after it has been in the fridge for days. A new process has been developed at the Fraunhofer Institute for Process Engineering and Packaging IVV to achieve precisely that. An innovative packaging film releases small amounts of preservatives at those points where it comes into contact with the packaged food. This stops the growth of bacteria right where it begins – on the surface of the food. In this way, a maximum effect can be achieved with only very sparing use of preservatives.

1

The gentle touch of a robot 1
German Future Prize 2010

Conventional industrial robots are designed to deliver top performance. Since they work at high speed using their full power, people are well advised to keep out of their way. Now, a new idea is making for safe interaction between robots and human beings. The Handling Assistant conceived jointly by Andrzej Grzesiak of the Fraunhofer Institute for Manufacturing Engineering and Automation IPA, and Dr.-Ing. Peter Post and Markus Fischer of Festo AG & Co. KG has an arm that can grasp objects gently – it is even able to handle raw eggs. The idea behind the Bionic Handling Assistant is so convincing that its makers were awarded the German Future Prize 2010 for their efforts. The prize was presented by the German Federal President.

No worries with water

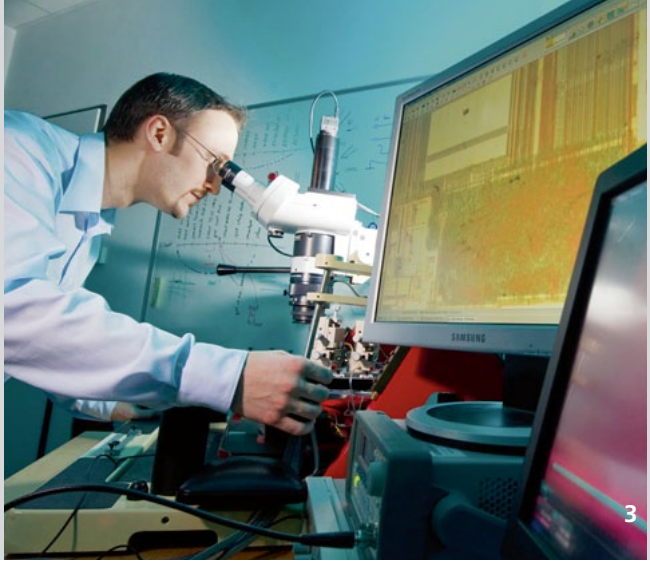
Drinking water is essential to human life – and the only substance that is piped directly into every home in the developed world. It must be constantly monitored for impurities so as to ensure that it can be consumed at any time without hesitation. The Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB and the Fraunhofer Institute for Optronics, System Technologies and Image Exploitation IOSB have developed a sensor system called AquaBioTox that reacts particularly quickly to toxic impurities. To this end, the Fraunhofer IGB uses living cells whose fluorescence changes when they come into contact with toxins. A highly sensitive camera system and integrated analysis unit developed by the Fraunhofer IOSB triggers an alarm as soon as it detects any changes in the quality of the drinking water. The system is currently being tested under real-life conditions.

Nothing dangerous on board 2

Liquid explosives look harmless to the human eye and are indistinguishable from other liquids – which is why only limited amounts of liquids are allowed on board aircraft. On behalf of the German Federal Ministry of the Interior (BMI), researchers at the Fraunhofer Institute for Chemical Technology ICT are testing detection systems to determine how reliably they can distinguish between liquid explosives and harmless fluids. The goal is to standardize the tests for detection procedures and to establish check routines for liquid explosive detection systems.

No trespassing 3

People don't always have access to everything. Pay TV subscribers and car owners, for instance, have an interest in preventing other people from using their property without permission. Smart cards or microchips are used to monitor this, but are these systems really secure? At the Fraunhofer Institute for Secure Information Technology SIT, embedded systems of this kind are put through their paces in a special laboratory. The researchers there are also developing new systems that will provide even better security against hackers and computer fraud in future. These complicated and sophisticated test methods are especially advantageous for smaller companies, for whom in-house development is too expensive an option.



Sensor protects against glass breakage

People who live in glass houses ... are nowadays virtually the norm, as glass has become a very popular design element for architects. But glass can break, which is especially dangerous when it is used in building facades because broken glass can fall and injure passers-by. Together with partners from industry, researchers at the Fraunhofer Institute for Silicate Research ISC have developed a glass sensor that recognizes incipient micro-cracks. The glass element can thus be replaced before dangerous breakage occurs.

No more hidden rust

Prestressed concrete is an indispensable component of many high-load-bearing bridges. Its reliability depends mainly on the quality of the steel elements used. If they begin to rust because road salt penetrates too deeply into the concrete, the safety of the structure is impaired. A corrosion sensor developed at the Fraunhofer Institute for Microelectronic Circuits and Systems IMS is embedded in the concrete. It reacts as soon as it comes into contact with intrusive salt, triggering a signal that maintenance work is due.

MOBILITY

The incredible lightness of…

Engineers rave about carbon-fiber-reinforced plastic (CFRP), as this material is virtually unparalleled in combining exceptional strength and lightness. But it is neither easy to manufacture nor simple to install. Although success with small-scale structures is already commonplace, intensive research is still required to construct large components. In order to move forward in this field, the Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM is in the process of setting up the Project Group Joining and Assembly FFM at the new major research center CFK Nord in Stade. In cooperation with partners from industry, researchers at the center will develop processes for the automated precision machining – i.e. drilling, milling and trimming – and automated adhesive bonding of XXL-sized CFRP structures.

Good connection, no waiting

Public transportation could be more popular if passengers did not have to wait long for their connections. At the Fraunhofer Institute for Industrial Mathematics ITWM, researchers have come up with a planning tool that can help to optimize connection times. The system is based on so-called ant colony optimization (ACO) algorithms. Virtual ants search for the best connection and then help others to find other good alternatives.

Fog- and ice-free windshields 1

Winter driving is not always fun, and a fogged-up or iced-covered windshield is often the cause. Researchers at the Fraunhofer Institute for Surface Engineering and Thin Films IST have now developed a new kind of coating for windshields that can help. The transparent film is as conductive as metal; that makes the glass function like a heat mirror, preventing it from cooling down and freezing over. It can save the time-wasting and – especially for electric vehicles – energy-consuming process of deicing the windshield using the car's heating system.

The smell of danger 2

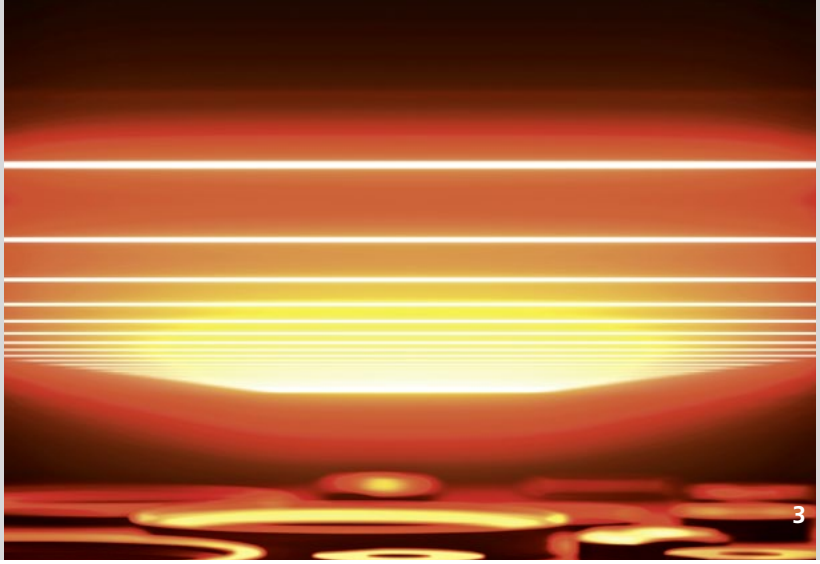
Bicycle helmets provide protection – but only as long as they are undamaged and relatively new. Scientists at the Fraunhofer Institutes for Environmental, Safety and Energy Technology UMSICHT and for Mechanics of Materials IWM have invented a warning signal for bike riders' helmets. Once the plastic has been damaged or badly bent, it releases an aroma – the helmet begins to smell. This process can of course be adapted for other plastic components: by giving off an odor they signal that a critical load has been exceeded or that they have developed cracks.

A clear view in all weather

Vehicle electronics have to withstand enormous stresses – such as vibrations and extreme fluctuations in temperature – and still continue functioning. That is why the researchers at the Fraunhofer Institute for Microelectronic Circuits and Systems IMS developed an image sensor that can function reliably across a temperature range from –40°C to +115°C. In addition to automotive applications, such as automatic parking systems, the image sensor is suitable for surveillance functions in manufacturing engineering applications.

Keeping watch on driver fatigue

There is no law against sleeping in a moving vehicle – except for drivers. They are not allowed to close their eyes for even a second. In future, however, an eye tracker will be able to warn you if you start to drift off. This driver assistance system is no bigger than a matchbox and was developed at the Fraunhofer Institute for Digital Media Technology IDMT. It monitors a driver's eye movements and sounds an alarm as soon as he or she begins to fall asleep.



ENVIRONMENT

Dynamic duo conserves resources 3
Stifterverband Science Prize

Diamonds are exceptionally hard, good heat conductors, and impervious to chemical substances. Ceramics are robust and can withstand extreme temperatures. In a cooperative effort, scientists at the Fraunhofer Institutes for Surface Engineering and Thin Films IST, for Mechanics of Materials IWM, for Ceramic Technologies and Systems IKTS and for Production Systems and Design Technology IPK, along with their partners from industry, have succeeded in developing a new composite material for industrial use that unites the best features of both these substances. DiaCer®, a diamond-coated ceramic, saves energy and resources wherever building components and tools are subject to extreme wear, for example in pumps and forming tools. DiaCer® combines maximum wear resistance with a low coefficient of friction. The research partners' work was honored with the Stifterverband Science Prize.

Back to the field

Agriculture consumes ever larger amounts of fertilizers worldwide – and that is pushing up prices. Waste water, on the other hand, contains many nutrients that can be used as fertilizer. At the Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, scientists are therefore working on new methods of reclaiming nutrients such as nitrogen, phosphorus and potassium from waste water. In this way, the purification of waste water could be coupled with the production of fertilizers – an ideal combination of environmental protection and resource conservation.

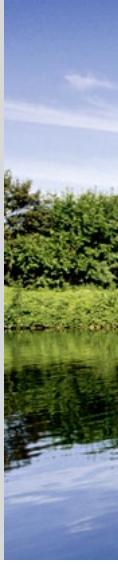
Sharkskin saves energy
Joseph von Fraunhofer Prize

Just like sharkskin, micro-structured surfaces can reduce flow resistance – something that is of particular interest in aircraft and ship design. Dr. Volkmar Stenzel, Yvonne Wilke and Manfred Peschka of the Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM developed a coating system that realizes the advantages of micro-structured surfaces in an optimum technical manner. The system consists of a lacquer – which is reinforced with nanoparticles and can be hardened with UV light – and a roller device that applies, structures and hardens the lacquer. If the system were to be deployed on a large scale, the estimated reduction in the fleet consumption of aircraft and ships would be around 2 percent. The researchers received the Joseph von Fraunhofer Prize 2010 for their invention.

Saving resources in production

Microelectronic components are a growth market. That is especially true of the flexible circuit boards which, because of their compact dimensions, are favored in mobile devices. As more and more resources are being consumed in their production, it makes both economic and ecological sense to look for savings potential here. Researchers at the Fraunhofer Institute for Surface Engineering and Thin Films IST developed a technology to manufacture such components with plasma in air at normal pressure and electroplating techniques, rather than using vacuum and laser processes. That reduces manufacturing costs and enhances production efficiency.

1



Cooling with the sun

What sounds like a contradiction, is actually highly functional in practice. In areas where there is an abundance of sunshine, it makes sense to use it as an energy source for cooling. Using the examples of a winery in Tunisia and a dairy in Morocco, scientists from the Fraunhofer Institute for Solar Energy Systems ISE have demonstrated that the solar cooling systems they developed work exceptionally well in practice. Concentrating collectors heat water to a temperature of 200°C, which is then used to drive an absorption refrigeration system.

Mobile walls block noise 1

Though costly, noise barriers along busy roads and train lines are necessary, and generally gain political approval. But what is to be done with sources of noise – like building sites – that cause problems for a relatively short period only? Prof. Dr. Schew-Ram Mehra of the Fraunhofer Institute for Building Physics IBP had the right idea: inflatable mobile noise barriers. The intelligent design of the barriers means they function exceptionally well. Schew-Ram Mehra and CENO Membrane Technology GmbH, which manufactures the barriers, received the "Germany – Land of Ideas" prize for their invention.

ENERGY

Focus on solar cells
Joseph von Fraunhofer Prize

The goal of research into solar cells is to make photovoltaics more competitive vis-à-vis conventional energy sources by lowering system prices and improving efficiency. Thanks to a new solar cell concept, Dr. Andreas Bett and Dr. Frank Dimroth of the Fraunhofer Institute for Solar Energy Systems ISE succeeded in achieving a record efficiency of 41.1 percent. In the process, light is concentrated up to 500 times, resolved spectrally and absorbed by an integrated multiple solar cell. This material-saving design is already being successfully marketed by Fraunhofer spin-off Concentrix Solar GmbH in the form of FLATCON® modules. The researchers were awarded the Joseph von Fraunhofer Prize for their work, Dr. Andreas Bett received the European EARTO Innovation Prize, while Dr. Frank Dimroth was honored with the French Fondation Louis D. prize.

A material with potential
Hugo Geiger Prize

In technological terms, building components made of silicon carbide hold huge potential. They can be used, for example, to produce highly efficient power transformers for electric vehicles and photovoltaic systems. However, they are difficult to make. In his diploma thesis, Sebastian Polster of the Fraunhofer Institute for Integrated Systems and Device Technology IISB made serious advances in the field of assessment procedures for silicon carbide crystals. Going forward, his

2

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results will allow even more targeted research into and development of this highly interesting semiconductor and its production process. Polster was awarded the Hugo Geiger Prize 2010 for his thesis.

Cheaper solar energy
Hugo Geiger Prize

A new idea for solar cells makes do with a very thin film of expensive, highly purified silicon and places the electricity-conducting contacts only on the back end of the modules, which are equipped with holes. With the aid of simulation programs, physicist Nils Brinkmann of the Fraunhofer Institute for Solar Energy Systems ISE showed that this approach is viable and how the production and efficiency of the new solar cells can be optimized even further. Brinkmann received the Hugo Geiger Prize 2010 for his efforts.

Turning electricity into gas 2

Renewable energy sources are playing an increasingly important role in our power supplies – and the trend looks set to continue. So it is becoming even more imperative to come up with new ways of storing energy, as neither sun nor wind are available around the clock. In cooperation with the Fraunhofer Institute for Wind Energy and Energy System Technology IWES, scientists at the Centre for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW) developed a process for storing electricity as natural gas. The advantage of this approach is that it makes use of the natural gas infrastructure already in place.

Eco-friendly pit-stops

Electromobility makes ecological sense, especially when the electricity used is generated from renewable energy sources. But supplies of energy from these sources are not constant; they vary depending on weather conditions. Researchers at the Fraunhofer Institute for Solar Energy Systems ISE developed an intelligent charging station for electric vehicles that adapts the charging times depending on the availability of energy and on grid utilization. The accumulator is recharged mainly when a lot of electricity from solar or wind power sources is being fed into the grid and when overall power consumption is low.

Every wheel has its own motor 3

Wheel-hub motors are not a new invention – Ferdinand Porsche equipped an electric car with them over 100 years ago. But with today's technologies, a power unit of this type can be implemented in a much better way. In their joint development work, the Fraunhofer Institutes for Manufacturing Technology and Advanced Materials IFAM, for Integrated Systems and Device Technology IISB, for Mechanics of Materials IWM and for Structural Durability and System Reliability LBF have made it their goal to harness the decisive advantages of this technology for the coming era of electromobility.

FINANCIAL REPORT

BALANCE SHEET
AT DECEMBER 31, 2010

INCOME STATEMENT FOR THE
FINANCIAL YEAR 2010

RECONCILIATION BETWEEN
INCOME STATEMENT AND
PERFORMANCE STATEMENT
(CASH-BASIS ACCOUNTING)

BALANCE SHEET AT DECEMBER 31, 2010

FRAUNHOFER-GESELLSCHAFT
ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V., MÜNCHEN

ASSETS	€	€	**2010** €	**2009** € (1000)
Current assets				
Cash and cash equivalents		53,171,254.91		60,835
Marketable securities		238,937,742.88		229,947
Accounts receivable and other current assets				
Trade receivables	176,734,718.81			164,204
Receivables from the federal and *Länder* governments				
relating to base funding	7,139,023.47			10,861
relating to project billing including contract research	178,510,601.38			108,007
relating to pension and compensated absence provisions	46,381,350.00			45,670
	232,030,974.85			164,538
Accounts receivable from associated companies	3,590,458.94			8,322
Other current assets	57,212,976.79			62,954
		469,569,129.39		400,018
Inventories		25,807,512.07		16,664
Prepaid expenses and deferred charges		6,493,926.71		4,642
Total current assets			793,979,565.96	712,106
Intangible assets			13,276,939.12	13,376
Property, plant and equipment			1,466,684,179.02	1,382,158
Financial assets			13,085,524.59	11,787
Total assets			**2,287,026,208.69**	**2,119,427**
Trust assets			41,750,690.49	37,829

LIABILITIES AND EQUITY	€	€	2010 €	2009 € (1000)
Current liabilities				
Trade payables		85,009,919.15		64,671
Unappropriated grants from the federal and *Länder* governments				
relating to base funding	60,871,077.66			68,195
relating to project billing	97,820,846.03			81,004
		158,691,923.69		149,199
Accounts payable to associated companies		–		88
Other current liabilities		9,384,126.34		18,371
Total current liabilities			253,085,969.18	232,329
Long-term liabilities			–	900
Deferred income			6,122,776.99	6,382
Provisions for pensions and similar obligations			11,432,693.00	11,659
Other provisions			112,390,314.00	127,181
Special reserves				
License-fee revenue reserve				
Grants relating to fixed assets		237,981,274.82		231,714
Grants used to finance current assets		1,480,067,877.21		1,394,220
		172,927,663.29		102,426
			1,890,976,815.32	1,728,360
Equity				
Capital of the non-profit organization				
Carried forward	12,604,377.57			11,720
Allocation	–			457
Retained earnings	397,157.63			428
		13,001,535.20		12,605
Restricted reserves		16,105.00		11
Total equity			13,017,640.20	12,616
Total liabilities and equity			**2,287,026,208.69**	**2,119,427**
Trust liabilities			41,750,690.49	37,829

INCOME STATEMENT FOR THE FINANCIAL YEAR 2010

FRAUNHOFER-GESELLSCHAFT
ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG E.V., MÜNCHEN

				2010		**2009**
		€	€	€	€ (1000)	€ (1000)
Revenue from base funding						
Federal government			490,546,897.06		552,512	
Länder governments			62,961,506.16		68,934	
				553,508,403.22		621,446
Revenue from own activities						
Revenue from research and development activities						
Federal government:	Project funding	323,232,811.83			257,948	
	Contracts	10,812,748.73			10,872	
Länder governments:	Project funding	189,630,887.35			133,088	
	Contracts	2,945,554.65			4,091	
Business, industry and trade associations		453,971,706.05			427,770	
Research funding organizations and other sources		111,083,320.58			106,707	
			1,091,677,029.19			940,476
Increase in work in progress			35,877,778.05			3,460
Other internally constructed and capitalized assets			6,910,856.23			7,985
Other operating income			39,029,200.00			74,489
Income from non-current marketable securities and non-current loans			–			183
Other interest and similar income			75,226.75			2,769
				1,173,570,090.22		1,029,362
Total base funding and revenue from own activities				1,727,078,493.44		1,650,808
Changes in special reserves						
License-fee revenue reserve			–6,266,582.22		43,822	
Grants relating to fixed assets			–84,075,536.88		–126,188	
Grants used to finance current assets			–69,801,219.10		–33,631	
				–160,143,338.20		–115,997
Total income available to cover expenditure				**1,566,935,155.24**		**1,534,811**

	€	€	2010 €	€ (1000)	2009 € (1000)
Cost of materials		269,834,206.10			243,557
Personnel expenses		785,206,845.98			736,501
Amortization of intangible assets and depreciation of property, plant and equipment		248,090,502.54			235,020
Other operating expenses		213,808,996.87			220,767
Amortization of financial assets and current marketable securities		356,766.12			103
Total expenditure			1,517,297,317.61		1,435,948
Net income on ordinary activities			49,637,837.63		98,863
Extraordinary expenses (allocation to foundation capital)			–49,236,000.00		–98,436
Net income for the year			401,837.63		427
Transfer from reserves			–		5
Transfer to reserves			–4,680.00		–4
Retained earnings			397,157.63		427
Allocation to capital of the non-profit organization			–397,157.63		–428
			–		–

RECONCILIATION BETWEEN INCOME STATEMENT AND PERFORMANCE STATEMENT (CASH-BASIS ACCOUNTING)

Income/receipts	Performance statement	Non-profit organization capital	Reconciling items	Income statement
	€	€	€	€
Income/receipts				
from base funding	553,107,119.02		401,284.20	553,508,403.22
from research and development activities	1,128,371,149.29		−36,694,120.10	1,091,677,029.19
Increase in work in progress			35,877,778.05	35,877,778.05
Other internally constructed and capitalized assets	6,910,856.23			6,910,856.23
Other income	38,057,045.98	620,969.32	426,411.45	39,104,426.75
Total income/receipts	**1,726,446,170.52**			
Changes in special reserves				
License-fee revenue reserve			−6,266,582.22	−6,266,582.22
Grants relating to fixed assets				
Allocations to special reserves (capital expenditure)			−332,375,269.47	−332,375,269.47
Reversal of special reserves (depreciation)		43,762.92	248,255,969.67	248,299,732.59
Grants used to finance current assets	−70,107,222.90		306,003.80	−69,801,219.10
Change in grants receivable relating to pension and compensated absence provisions	711,319.00		−711,319.00	
Total business volume (cash basis)	**1,657,050,266.62**			
		664,732.24	−90,779,843.62	1,566,935,155.24

Expenditure/disbursements	Performance statement	Non-profit organization capital	Reconciling items	Income statement
	€	€	€	€
Expenditure/disbursements				
Cost of materials	255,086,236.30	21,973.38	14,725,996.42	269,834,206.10
Personnel expenses	709,567,768.68	770.00	75,638,307.30	785,206,845.98
Amortization of intangible assets and depreciation of property, plant and equipment		191,298.99	247,899,203.55	248,090,502.54
Other expenses	303,702,760.04	48,852.24	–89,585,849.29	214,165,762.99
Expenditure as per the income statement				**1,517,297,317.61**
Changes in special license-fee revenue reserve	6,266,582.22		–6,266,582.22	
Capital expenditure (current and major infrastructure)	332,426,919.38		–332,426,919.38	
Extraordinary expenses	50,000,000.00		–764,000.00	49,236,000.00
Net income for the year		401,837.63		401,837.63
Total business volume (cash basis)	**1,657,050,266.62**	664,732.24	–90,779,843.62	1,566,935,155.24

The Fraunhofer-Gesellschaft prepares its annual financial statements in accordance with the German Commercial Code (HGB) as applicable to large corporate entities.

The annual financial statements for the year ending December 31, 2010, have been audited and fully certified by the auditing firm Rödl & Partner GmbH, Nuremberg.

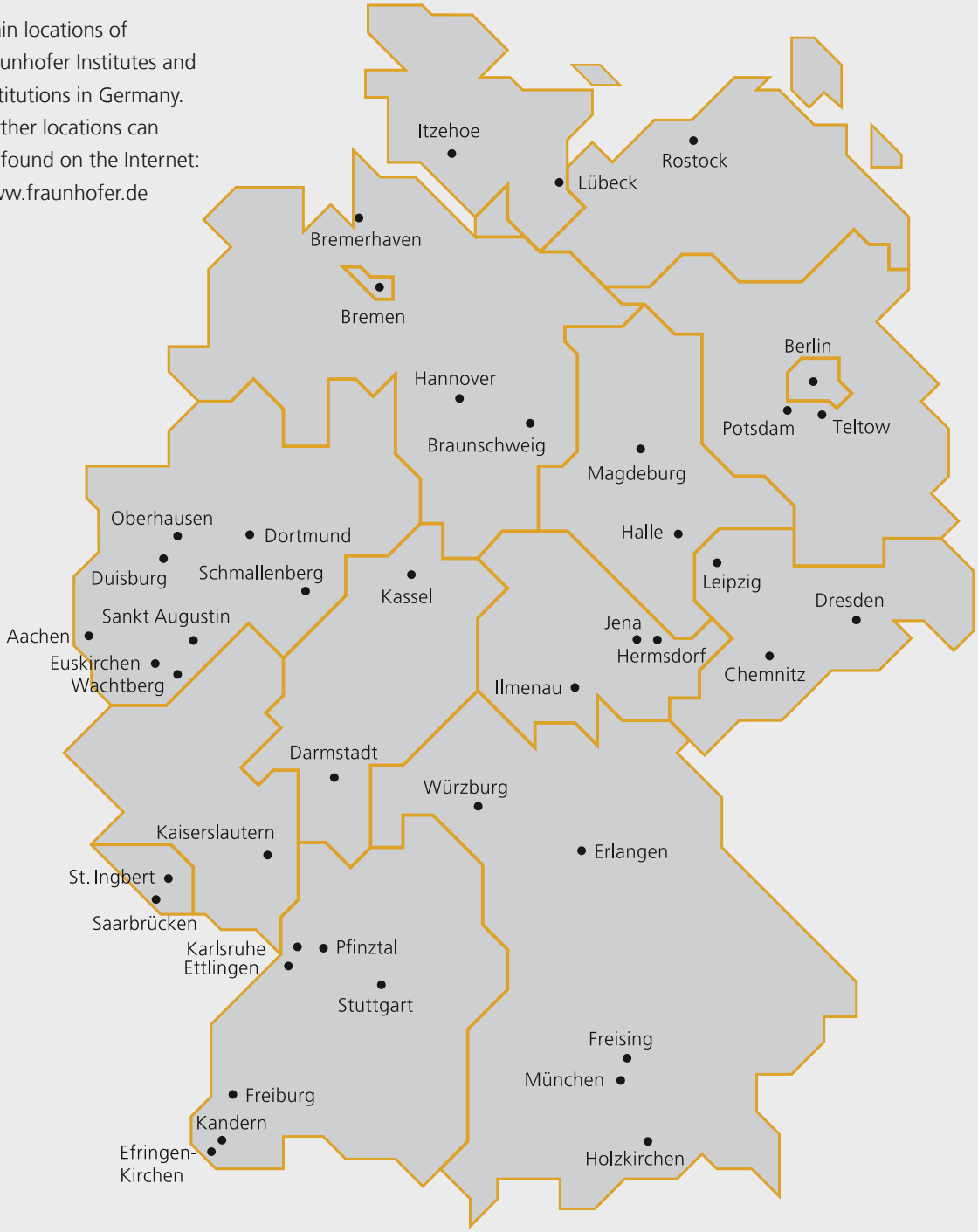
The income statement is reconciled to the format required by the relevant public funding authorities.

SERVICE

ADDRESSES

EDITORIAL NOTES

Main locations of Fraunhofer Institutes and Institutions in Germany. Further locations can be found on the Internet: www.fraunhofer.de



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