

New Value Creation

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CSR for Value Provision
New Value Creation



Why is it Important ?

The Source of Sustainability for Society and the Company

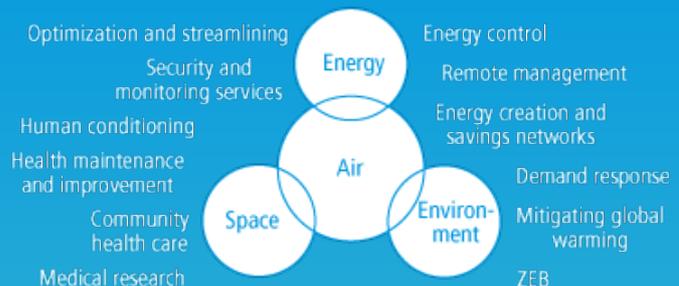
Amid today's globalization, technology is changing and advancing at greater speed than ever. It is becoming tougher for a company to offer differentiated products or services so that customers purchase based on price. For a company to grow in this situation, it must provide advanced value by combining state-of-the-art technologies resulting in new products that help society solve problems in fields such as energy, the environment, and health.

DAIKIN'S POLICY

Sharing Dreams and Ambitions Inside and Outside Daikin to Realize a Healthy, Comfortable Lifestyle through Air

Technology today is advancing at an unprecedented pace. To create new value in this world, a company must think outside the box and pursue "collaborative innovation" that pools a wide range of knowledge and technologies. In November 2015, we established the Technology and Innovation Center, which acts as the core of our efforts to pursue collaborative innovation. Through the center, we can combine resources both inside and outside Daikin and provide new products and services that bring happiness and joy to customers' lifestyles, and come up with technologies that contribute to solving problems society faces in the areas of environment, health, and medicine.

Research Themes for New Value Creation





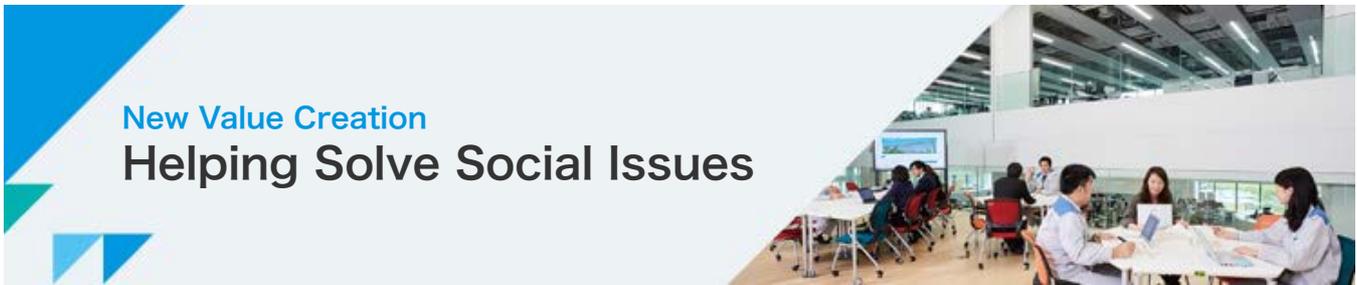
> **Helping Solve Social Issues**

We cooperate with industry groups and other companies, and work in industry-academia tie-ups in order to create technologies that help solve society's problems.



Working Toward
> **Sustainable Development Goals**

The Daikin Group seeks ways to contribute to achievement of the United Nations' Sustainable Development Goals (SDGs).



■ **Cooperation with Influential Figures and Industry Groups**

Daikin Air Forum

Since Fiscal 2013, Daikin Industries, Ltd. has held the Air Forum, a platform for discussion between outside experts and Daikin engineers on how to take on society’s challenges with regards to air.

The fifth session of the Air Forum took place in December 2015 at the Technology and Innovation Center, which opened in November 2015. Naoki Miyano, an associate professor at Kyoto University and a committee member of the Daikin Kyoto University Innovation Program (DKIP), delivered a lecture titled “What is new social value?” Participants, including experts in fields such as air conditioning, architecture, life sciences, and medicine, then discussed this topic in detail.

World Sleep Conference: Better Quality of Sleep through Air Research

In March 2016, Daikin Industries, Ltd., Showa Nishikawa, Lion Corporation, and Renaissance Inc. jointly established the World Sleep Conference, a



project to improve people’s health through better sleeping. The goal is to focus on the importance of sleep, define ways to create new health movements that promote better sleep, and make people’s lives more fulfilling and healthy. To this end, the World Sleep Conference provides information through a range of media aimed at realizing better health through sleep, with contributions by sleep researchers and experts in cultural disciplines that cross the boundaries of industries and research fields.

It is known that sleep affects not just physical health but mental health as well, and negative sleep patterns can lead to depression and insomnia, and a fall in things like concentration and productivity.

With people increasingly suffering from sleep-related problems, Daikin Industries, Ltd. focused on the close relationship between sleep and warm environments. The company used the TIC’s newly built Sleep and Metabolism Laboratory to replicate actual human sleeping environments in order to study the correlation between sleep and warmth. The result has been new products and services that will improve the quality of sleep through the power of air.

Participation in the World Green Building Council

Daikin Industries, Ltd. joined in the World Green Building Council (WorldGBC) to contribute to the reduction of energy consumption in buildings through energy efficient air conditioners. WorldGBC is an international network of organizations such as certification bodies and business enterprises in 72 nations, sharing information to promote green building across the globe.



At the conference held in March 2016, Daikin presented the results of demonstration tests conducted together with Nagoya University on the development of energy-efficient air conditioners that could help realize zero-energy buildings (ZEB)*.

* ZEB: A zero-energy building is one that effectively consumes zero energy thanks to the energy efficiency of the building and equipment, as well as the use of renewable energy sources on-site to power the building.

■ Open Innovation through Industry-Academia Collaboration

Agreement with Kyoto University in Humanities and Sciences

June 2013, Daikin Industries, Ltd. and Kyoto University concluded a comprehensive collaboration agreement with the goal of creating and researching new themes focusing on social values toward future-oriented solutions in the fields of air quality, environment, and energy. The aim of this program goes beyond the sciences as the two parties will actively engage the participation of researchers in the humanities as well in order to create innovations that contribute to society and economy.

At a humanities and sciences workshop titled Concepts in Air, participants came up with six concepts for the creation of new value through air; for example, how air can make food more delicious and bring people together. Under this agreement, the parties are currently working to finalize the technological issues that are needed to realize each concept.

■ Prototype of air conditioner that brings people together: blending sensual stimulation and design



Areas are divided by level of temperature, images, and lighting to provide either relaxing or stimulating environments.

Future Joint Research Laboratories Established with Nara Institute of Science and Technology

In October 2012, Daikin Industries, Ltd. and the Nara Institute of Science and Technology (NAIST) established the Future Joint Research Laboratories. In conventional agreements between industry and academia, the corporation generally names the project content and the university carries out the necessary project research. But this collaboration between Daikin and NAIST begins with a quest for pressing social issues, followed by discussions on how to solve them and then the start of research toward this goal.

Daikin and NAIST are currently proceeding with research on the theme of clean innovations aimed at high-level anti-fouling. At the same time, the two parties hold periodic discussions aimed at finding the next research theme.

In December 2015, Daikin and NAIST held a contest for students to come up with ideas on the theme “air conditioning and IoT.” The dreams and original ideas of the students are sure to lead to the creation of new value.

Collaboration with Kansai University

In November 2012, Daikin signed an agreement with Kansai University to collaborate fully on ways to contribute to communities in education, research, and human resource development. Through this collaboration, we are offering free lectures on fluorine and helping accelerate joint research.

Joint Research Course with Osaka University

In 2006, Daikin launched the Daikin (Fluorine Chemistry) Joint Research Chair at Osaka University under which Daikin provides research funds and sends researchers to the university with the aim of combining the company’s fluorochemicals technologies with the university’s advanced research capabilities in order to come up with innovative fundamental technologies. One of the fruits of this collaboration is the development of a proprietary n-type semiconductor PNP, a crucial component in organic thin-film solar cells, which are garnering attention as a way to generate electricity in an environmentally conscious way.

In fiscal 2015, the parties succeeded in developing a new n-type semiconductor with higher voltage than PNP, and high solvent solubility that makes it ideal for manufacturing paint-on semiconductors. They are currently creating prototypes with semiconductor manufacturers. In fiscal 2016, the 11th year of the joint research chair, Daikin’s air conditioning and other divisions joined this collaboration as the Daikin (Fluorine Chemistry) Joint Research (Chair) was re-launched as the Daikin Research Alliance Laboratories in order to conduct more comprehensive collaboration with Osaka University.

Tie-up with Tsinghua University

In 2003, the Tsinghua-Daikin R&D Center was established at Tsinghua University in Beijing, one of China’s top universities. Since then, Daikin and the university have worked together to jointly develop air conditioner technologies.

In fiscal 2016, in addition to research into chemical technologies, the Tsinghua-Daikin R&D Center began research aimed at solving environmental issues. The center works with leading researchers in environmental fields such as air quality, water quality, and energy.



Our modern world is undergoing constant change that is bringing about problems like poverty, inequality, and climate change. To mount a global effort toward solving these problems, in September 2015 the United Nations adopted “Transforming our world: the 2030 Agenda for Sustainable Development” and established the Sustainable Development Goals (SDGs).

The Daikin Group aims to contribute to the realization of the SDGs by identifying three themes: environment, cities, and health and comfort. Our aim is to use our world-class technologies to reduce environmental impact while at the same time providing new value in the form of a healthy, comfortable way of living.

■ Value Creation for the Earth

Responding to Climate Change while Providing Air Conditioning Systems with Less Environmental and Energy Impact

With global warming causing increasingly frequent occurrences of abnormal weather, the effects are being felt not just as changes in the natural environment but also as the spread of infectious diseases and other threats to human health. The rise in atmospheric temperature, economic advancement, and population growth around the world are fueling a constantly increasing demand for air conditioners. However, there are fears that large amounts of electricity consumption and refrigerant leakage will accelerate global warming.

As a global air conditioner manufacturer, the Daikin Group is working to decrease greenhouse gas emissions through the dissemination of inverter air conditioners and low-global-warming-potential refrigerants. In addition, we are utilizing our fluorochemical technologies and developing and providing new materials that contribute to the use and spread of renewable energy.



■ Value Creation for Cities

Creating Spaces that Respond to the Needs of Urbanization

Economic and population growth in emerging countries are causing rapid urbanization. The number of mega-cities with populations exceeding 1 million is on the rise, and these cities will require increasing amounts of energy. And with rising atmospheric temperatures, they will also require air conditioners to provide residents with comfortable living environments.

Meanwhile, in the industrialized countries, where populations continue to drop, workers increasingly require comfortable spaces where they can do their jobs easily and productively.

The Daikin Group provides air conditioners that create environments to meet the needs of people in both emerging and industrialized countries. Furthermore, we are working on realizing zero-energy buildings, which use renewable energy sources in order to effectively achieve a net energy balance of zero, and utilizing ICT technologies, which promote energy efficiency through comfortable air conditioner operation throughout an entire town. The goal is to realize livable cities that achieve comfort and energy efficiency through city-wide air conditioner control.



■ Value Creation for Health and Comfort

Contributing to the Reduction of Air Pollution and Safe Food Distribution to Achieve Both Healthy Living Environments and Economic Development

With economic development come rapid industrialization, exploding population growth in cities, and ballooning traffic volume — all of which contribute to more hazardous chemicals in the atmosphere that are detrimental to human health, as well as to spiraling healthcare costs.

The Daikin Group believes that an effective way to reduce air pollution is to place filters on factories and other facilities that give off emissions containing hazardous chemicals. We also strive for pleasant indoor environments by making products that remove not only air pollutants but also odors.

Despite the shortage of food in today's world, large amounts of it must still be thrown away because temperatures for the storage of transportation of food cannot be effectively controlled.

Besides contributing to optimal temperature control, the Daikin Group provides refrigeration equipment for commercial use and marine transport that is driven by proprietary freshness control and energy efficiency technologies. By contributing to the creation of a global cold chain system in which fresh food is transported from producing to consuming regions, we help alleviate world food shortages by ensuring that less food needs to be thrown away. These technologies are also used in the transport of pharmaceuticals that require strict temperature control, thus helping ensure that hospital patients get the treatment they need. Daikin contributes to both healthy living environments and economic development.



Sustainable Development Goals: SDGs



1. No poverty

End poverty in all its forms everywhere



2. Zero hunger

End hunger, achieve food security and improved nutrition and promote sustainable agriculture



3. Good health and well-being

Ensure healthy lives and promote well-being for all at all age



4. Quality education

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all



5. Gender equality

Achieve gender equality and empower all women and girls



6. Clean water and sanitation

Ensure availability and sustainable management of water and sanitation for all



7. Affordable and clean energy

Ensure access to affordable, reliable, sustainable and modern energy for all



8. Decent work and economic growth

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



9. Industry, innovation and infrastructure

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



10. Reduced inequalities

Reduce inequality within and among countries



11. Sustainable cities and communities

Make cities and human settlements inclusive, safe, resilient and sustainable



12. Responsible consumption and production

Ensure sustainable consumption and production patterns



13. Climate action

Take urgent action to combat climate change and its impacts



14. Life below water

Conserve and sustainably use the oceans, seas and marine resources for sustainable development



15. Life on land

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



16. Peace, justice and strong institutions

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels



17. Partnerships for the goals

Strengthen the means of implementation and revitalize the global partnership for sustainable development