

# New Value Creation

## Why is it Important?

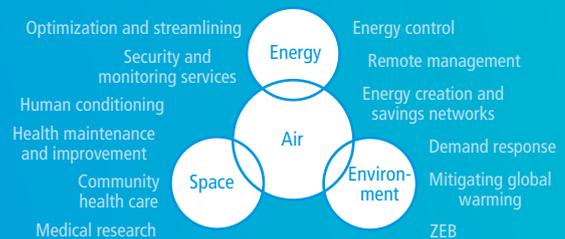
### The Source of Sustainability for Society and the Company

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

### Research Themes for New Value Creation



## Feature Creating New Value to Meet the Expectations of Customers and Society

# Collaborative Innovation with Other Industries and Fields

## DAIKIN'S APPROACH

### Creating New Value Inside and Outside the Company

In order to meet diverse customer needs and create new value that contributes to society, it is important that Daikin first build up its technological superiority by leading further advanced technologies: inverters, heat

#### Internal Collaboration and External Collaboration



- Internal Collaboration**
- Collaboration across company divisions
  - Collaboration with Daikin's worldwide bases

- External Collaboration**
- Collaboration with universities and external research institutes
  - Collaboration throughout the supply chain
  - Collaboration with other industries and entrepreneurial ventures

pumps, and fluorochemicals. It is also important to combine state-of-the-art technologies from around the world—such as information-communication, sensors, materials, processing, medicine, and healthcare—with Daikin technologies to come out with products and services that provide new value to customers.

Today's world of unprecedented and rapid technological change requires the creation of new value, which is only possible through collaborative innovation that fuses a wide range of knowledge and technologies and takes us beyond current boundaries. The key to success will be how well we pool the strengths of Daikin and its external partners to create and provide new products and services that bring happiness and joy to people's lifestyles. Also crucial will be how well we come up with technologies that contribute to solving the problems society faces in the fields of environment, health, and medicine. To this end, Daikin established the Technology and Innovation Center in November 2015 with the aim of promoting collaboration with external partners in order to contribute to society through the creation of new value.



The wide-open space of the Waigaya Stage facilitates debate and discussion.

## DAIKIN'S PERFORMANCE

### The Technology and Innovation Center: A Core Facility Bringing Together Daikin's R&D Functions

Located in Settsu City, Osaka Prefecture, the Technology and Innovation Center (TIC) is a core technology development facility that brings together about 700 Daikin engineers from a range of disciplines. Representing the collective power of the Daikin Group's engineers, the TIC does more than just create technologies: it delves deeply into research themes, researches and develops new technologies, and promptly brings them to market in new products and services through collaboration across TIC and the other divisions in Daikin.

At the same time, a key mission of the TIC is to strengthen cooperation and tie-ups with companies, universities, and research institutes possessing unique technologies in their particular industry or field, inviting people, information, and technologies from around the world, resulting in collaboration with Daikin in giving birth to innovation.

To facilitate collaboration inside and outside the company, the TIC features a range of facilities where engineers can gather for lively and meaningful discussion. These include the Waigaya Stage, which is always ready to spur-of-the-moment meetings; the Future LAB for debate among Daikin and other industry engineers; and the CHI-NO-MORI, where participants can brainstorm with regards to Daikin core technologies as well as cutting-edge technologies currently under development.

In addition, there are fellow rooms in which guests

such as university professors and opinion leaders from around Japan and the world can give presentations. These rooms have so far been used as offices where Daikin can work with representatives of universities with which the company is conducting joint R&D, including Kyoto University, Osaka University, and the Nara Institute of Science and Technology. Eiichi Negishi, a distinguished professor at Purdue University and a recipient of the 2010 Nobel Prize in Chemistry, has also provided technological guidance to Daikin here.

The TIC has other world-class facilities. These include the Electromagnetic Semi-Anechoic Chamber, the first of its kind in the world, for the separate measurement of electromagnetic noise generated by the indoor and outdoor units of air conditioners; and the Sleep and Metabolism Laboratory, where actual human living conditions have been created for experimental purposes.

#### Stakeholder's Comment

##### Want to See Daikin Create Totally New Value Contributing to Solutions for Society

At TIC, we would like to see Daikin create totally new value solutions geared to a diverse society; for example, zero-net-energy air conditioning systems and portable mobile air conditioning systems. We believe that by developing air conditioning solutions with a focus not just on indoor air but on outdoor air as well, Daikin can contribute to solving problems such as air pollution and climate change.



**Tai Lee Siang**  
Vice-Chairman,  
World Green  
Building Council

**Feature** Collaborative Innovation with Other Industries and Fields

**“Airitmo” Proprietary Technology Developed with Outside Collaboration for Next-Generation Offices**

Collaboration is more than just a way for Daikin to use air conditioning to control air environments. By undertaking extensive research covering themes such as living spaces, towns, cities, and infrastructure for regions, we seek to create new value for people’s lifestyles through the study of physiology and psychology as it involves to the relation between air environments and people’s bodies.

For example, for the past 15 years Daikin has been conducting R&D on the theme of improving people’s sleeping environment through air conditioning by using sensing technology that monitors people’s physical state. The result was the development of our proprietary sensing technology, called Airitmo. By measuring the vibration of air within a tube, the technology allows measurement of physical information such as heart rate, breathing, body movement, state of sleep, and stress. Since it does not involve attaching apparatus to a person, it places no burden on the human body. This technology made possible the development of Daikin’s Soine controller, which measures how deeply a person is sleeping so that the air conditioning can be adjusted to the most comfortable level.

In March 2016, office chairs equipped with Airitmo technology were installed in the 3x3 Lab Future of

Mitsubishi Estate Co., Ltd., a site for the sharing of business ideas. The products are the result of two years of verification experiments on the correlation between office environments and people’s physical and mental state in order to realize an air environment matched to an individual’s current state of health. The aim is the realization of the next-generation office in which people enjoy greater comfort and productivity and thus get their work done smoothly.

**NEXT CHALLENGE**

**Contribute to Solutions for Society through New Value in Air Environment**

Daikin’s Airitmo sensing technology is indispensable to the development of air conditioners that achieve a comfortable and healthy air environment, as well as a key development theme at the TIC. We will continue to promote collaborative innovation both inside and outside Daikin in order to realize air environments that help solve a range of social issues, such as our increasingly aging population. Coming up with solutions requires finding technologies that can make a range of thoughts and ideas into reality. At the TIC, engineers work closely with experts in fields such as sociology, anthropology, and cognitive science in order to create new value that improves the air environments where we live.

**Collaborative Innovation Creates New Value for People’s Lifestyles Based on the Relation between Air Environments and People’s Bodies and Minds**

