

# Examples of Initiatives to Realize the *Kyosei* Philosophy

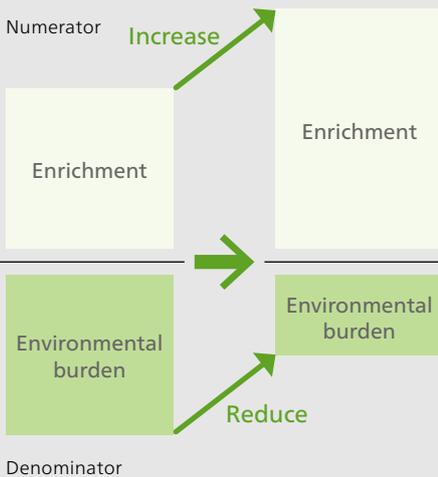
CASE

## 1 Creating Environmental Value through Product Life Cycle

### Canon's Vision of Environmental Value

Guided by its Environmental Vision "Action for Green," Canon is working to reduce environmental impact through its business activity. Within this vision, we define the environmental value we seek to achieve as the striking of a beneficial balance between "enriching lifestyles"—improving the amenity of human life with superior products—and "reducing environmental burden"—minimizing the environmental impacts associated with creating and delivering products. This approach can be illustrated in a diagram where "enriching lifestyles" represents the top number in a fraction (the numerator) and "environmental burden" the bottom number (the denominator). Our initiatives aim to make the numerator bigger and the denominator smaller.

#### Canon's vision of environmental value



Generally, there is a trade-off relationship between enriching lifestyles and reducing environmental burden, whereby prioritizing one makes it difficult to achieve improvements in the other. At Canon, however, at the same time as creating better products, we are moving ahead with a range of adaptations and initiatives to reduce environmental burden at each stage of the product lifecycle, allowing us to combine the pursuit of enriched lifestyles with environmental burden reduction.

### Initiatives to Enrich Lifestyles

Enriching lifestyles is achieved by developing more advanced product functionality. At Canon, we are achieving higher functionality in a wide range of products, while at the same time minimizing their environmental impact.

One example is the latest model of one of our key business products, the imageRUNNER ADVANCE series of office multifunction devices. Among other improvements, it now boasts enhanced Cloud connectivity to support more efficient operation, alongside reinforcement of the robust security functions that contribute to enhanced user confidence.

"uniFLOW Online"\*<sup>1</sup> is a feature that widens the scope of Cloud service connectivity by sending scanned documents directly to any among a range of Cloud services,\*<sup>2</sup> promoting seamless data sharing and improved operational efficiency. As for security functions, the series features a "tamper detector" based on system verification on startup, which ensures advance prevention of any damage from unauthorized program operation. In such ways, we contribute to enriching customer lifestyles with functions that improve user-friendliness in the office environment.



uniFLOW Online—a feature that widens the scope of Cloud service connectivity for office multifunction devices

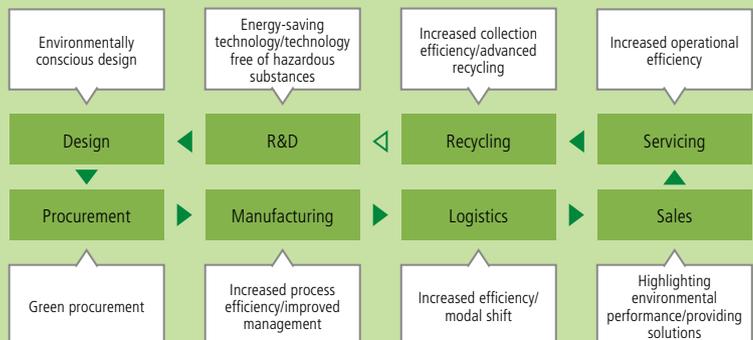
\*<sup>1</sup> uniFLOW Online is a paid service. Scan and upload to Google Drive is available with the free-of-charge service uniFLOW Online Express, but a fee is charged for interface with other Cloud services and for mobile printing functions.

\*<sup>2</sup> For details about compatible Cloud services, please inquire at your nearest dealership.

### Initiatives for Environmental Burden Reduction

Environmental burden reduction is relevant at all stages of business activity, from research & development, to design, procurement, production logistics, sales, servicing and recycling. That is why, at Canon, the departments involved work together to implement a range of environmental activities throughout the product lifecycle.

#### Environmental Activity Throughout the Product Lifecycle



At Canon, in order to monitor the results of all environmental activities in an integrated way and ensure a beneficial balance with business activities, we measure the efficiency of environmental initiatives through the index of "lifecycle CO<sub>2</sub>." This is the sum total of CO<sub>2</sub> emissions at each stage in the product lifecycle, for which we set an "overall target" of a 3% average yearly reduction per product unit.

Measuring this figure per product unit makes it a benchmark that is easily grasped at the manufacturing frontline. Unlike measurement per unit of net sales, it also allows the exclusion of factors beyond the enterprise's control,

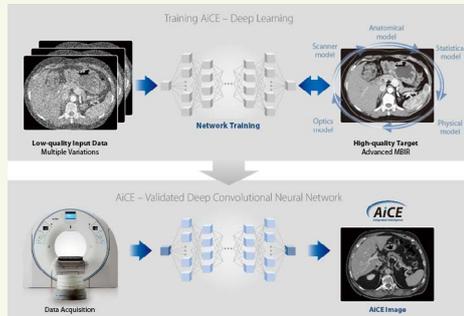
Likewise, when it comes to environmental burden, the imageRUNNER ADVANCE C3530FIII released for sale in 2019 achieves a reduction of as much as 25% in lifecycle CO<sub>2</sub> emissions compared to the imageRUNNER ADVANCE C2230F, thus realizing both enriched lifestyles in the office environment and environmental burden reduction.

Aquilion Prime SP, an X-ray CT system manufactured by our subsidiary Canon Medical, is newly fitted with the deep-learning technology “AiCE-i” for CT image reconstruction. This makes possible high-quality imaging investigation with low radiation exposure and reduced use of contrast agents. The system’s state-of-the-art clinical functions realize increased throughput to ensure that it meets the diverse needs of both patients and health care professionals, contributing as a result to enriched lifestyles.

In terms of environmental burden, the new system achieves a reduction of 31 tons in lifecycle CO<sub>2</sub> compared to the previous model. This and other enhancements enable it to achieve the combined goals of enriching lifestyles and reducing environmental burden.



X-ray CT system  
Aquilion Prime SP



AiCE-i realizes low noise, high spatial resolution, and high-speed image reconstruction

# Toward further increase in environmental value

Going forward, Canon will continue to understand environmental value as meaning the creation of “a society that achieves a beneficial balance between enriched lifestyles and the environment.” By continuing to deliver products and services that enrich people’s lives, and at the same time steadily promoting the protection and conservation of the environment, we will work to further increase environmental value and to realize our corporate philosophy of *kyosei*—harmonious coexistence.

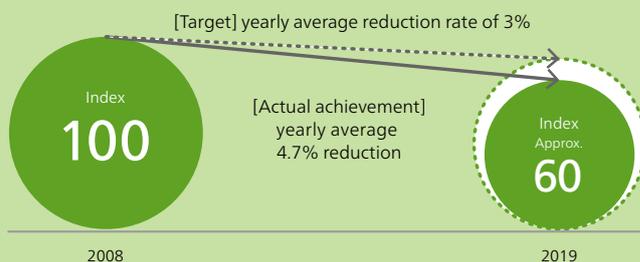
such as foreign exchange. The result is that efforts toward environmental burden reduction are accurately reflected in the index figure, which in turn helps to maintain and improve employee motivation. Currently, a total of some 400 employees are active as environmental officers within each Canon department (business divisions, sales companies, production companies, etc.), where they advance environmental activities towards realization of the above-mentioned goal. These activities are likewise supported by individual employees across the manufacturing frontline, from planning and development to design and production.

## Group-wide Environmental Activities



As a result of these concerted Group-wide initiatives, lifecycle CO<sub>2</sub> per product unit has been reduced by a yearly average of 4.7%, exceeding the target figure of 3%.

### Lifecycle CO<sub>2</sub> per Product Unit



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**2 Intellectual Property (IP) Activities: Promoting Continuous Growth Together with Business**

**Canon's IP Activities**

Knowing IP assets form the foundation of business development, Canon formulates and pursues IP strategies with a long-term perspective of 10-20 years into the future.

Canon has inherited an established corporate DNA that emphasizes creation of innovative technology as the means of generating new social value. We are creating original IP assets every day to enhance the value of products and services through continual evolution of our basic and core proprietary technologies via relentless R&D activities.

**Support Business to Create New Value**

**Patent Filing and Management of IP**

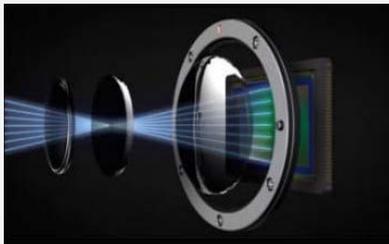
Working closely with R&D, production and marketing divisions, our IP Division focuses on unearthing and pursuing innovative discoveries so they can be protected by strong patents. For technologies in areas where it would take others a long time to catch up with us, we aim to maintain the inventions in the form of in-house trade secrets rather than seeking patents for them.

These IP activities, which effectively utilize our wealth of highly experienced personnel and technical expertise, help support Canon's competitive advantage in business.

**Examples of Technology-based Differentiation**

Canon seeks to differentiate its products from those of rivals by constructing a robust IP portfolio that protects its proprietary technology.

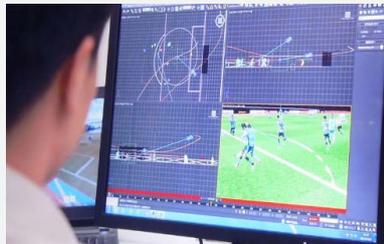
**Example 1:  
EOS R System  
New camera system that enhances photographic capabilities**



Building on the imaging capabilities of the newly developed RF lenses, the EOS R system delivers sharper detail in the subject image to reproduce color gradations not visible to the naked eye. It also enables dramatically quicker camera-lens communication for continuous shooting without compromising image quality, helping users capture high-quality images of subjects in motion.

The three features at the core of the system are short back focus, a large internal mount diameter and new mount data-transmission system. These technologies are protected by a strong portfolio of patents.

**Example 2:  
Free Viewpoint Video System  
Technology that realizes radically new video experience**



Canon demonstrated its Free Viewpoint Video System during Rugby World Cup 2019 (TM), to help enhance the appeal of the sport. The system allows viewers to watch the action from any viewpoint or angle.

A comprehensive patent filing program supports the innovative technologies involved in this system, from camera deployment and image capture to communications, image processing and the user interface.

**Example 3:  
Optical Coherence Tomography  
Angiography (OCTA)  
Image-processing technology that creates a 3D picture of retinal blood vessels**



Canon's Optical Coherence Tomography (OCT) scanning technology enables rapid capture of high-definition images of retinal blood vessels at the base of the eye, reducing the burden on the patient and the medical professional. One technology making this possible is a proprietary image-processing technology developed using deep learning known as "Intelligent Denoise" for reducing noise in high-definition images.

Based on patent applications relating not only to the inventions incorporated in products, but also to a broader range of medical devices using AI technology, Canon aims to construct an IP portfolio to protect future medical devices that will contribute to society.

Present

# Future

## For New Businesses

### IP Licensing Activities

To create new businesses, Canon tries to be ahead of the curve in IP licensing activities anticipating future trends. For example, anticipating the development of AI/IoT technologies, we started years ago to negotiate IP licenses with firms from other sectors. By securing cross licenses from companies with competitive technologies at an early stage using our strong patent portfolio, we aim to provide high-value-added products and services based on the integration of external and in-house technologies.

Ownership of multiple strong patents is an essential part of protecting the technology behind Canon's core competences while also facilitating alliances with the owners of competitive technologies. We maintain the strength of Canon's IP portfolio by selecting patents through constant evaluation of their values. Canon was the third-ranked company in the US by the number of registered patents in 2019 (→P26), and has been the leading Japanese company by this measure for 15 years running.

## Initiatives for Development of Businesses

### Standardization Promotion Activities

Canon takes part in activities to promote the adoption of international standards in areas such as streaming video, video coding, and communication technology and has contributed to the widespread adoption of digital video systems.

In recent years, Canon acquired standard-essential patents and other related IP in communications technologies and coding technologies that have become societal infrastructure through adoption of IoT, through which Canon is also actively establishing cross-license relationships with companies in other industries.

These efforts help secure freedom for technology development.

## Activities as Leader in the IP Field

### License on Transfer (LOT) Network

Lawsuits from so-called "patent trolls" that use IP purely for litigious purposes rather than innovation have posed challenges for many firms. In 2014, Canon, Google and four other companies took the initiative to found the License on Transfer (LOT) Network, which aims to restrict the threat of patent troll litigation as part of risk management.

LOT Network members agree to grant fellow member firms a free license to use any patent if the ownership of that patent is transferred to a non-member entity. This protects companies from the risks associated with frivolous patent lawsuits, enabling member firms to focus on developing products and services. We believe this contributes to promoting innovation. The number of LOT Network members has grown over the years to more than 600. Canon is continuing to engage in activities to promote innovation in partnership with other members.

## Contribution to the Environment Through IP

### WIPO GREEN

Canon became a partner in the "WIPO GREEN" program, an international framework operated by the World Intellectual Property Organization (WIPO) for the transfer of green technologies. By providing green technologies to the companies and organizations that need them, Canon hopes to contribute to environmental solutions through IP (→P109).

## Greater Value for Customers

### "Canon Design" Brand

Canon's IP activities also seek to support the development of "Canon Design" as a valuable intellectual property.

Canon supplies products and services that are usage-optimized, based on designs that aim to combine ideal appearance with performance and ease of use. This approach to design helps add value for customers.

The value of the Canon brand is controlled and promoted by all the Group companies through established brand management rules.



Canon Design helps to boost brand value