

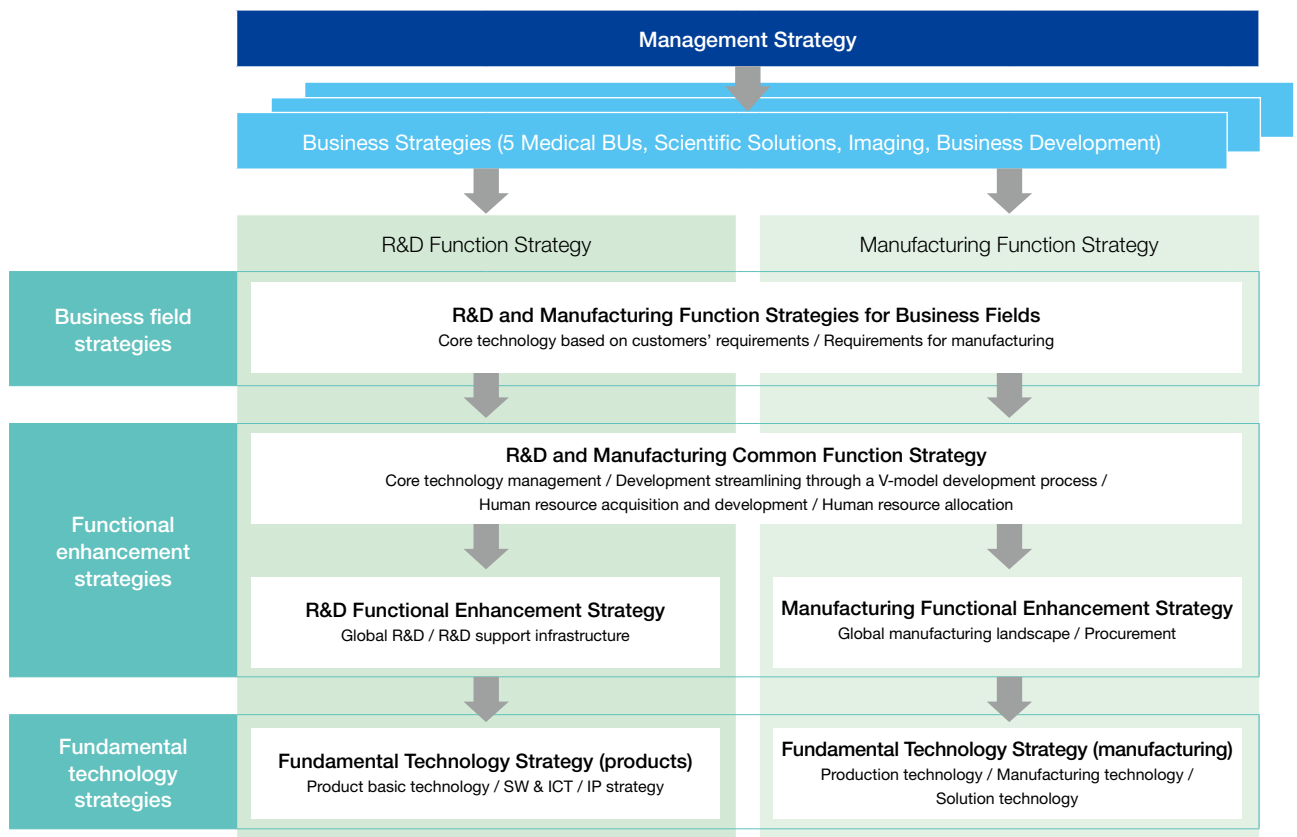
# R&D Activities

## Basic Policy

Olympus provides value in the form of early diagnosis and minimally invasive therapies through the supply of endoscopes, microscopes, digital cameras, and other proprietary developed products. We refer to the differentiated technologies that allow us to create such value for customers as “core technologies,” and these core technologies arise from our core competencies in optical technologies, electronic imaging technologies,

precision technologies, and biological based technologies. It is the goal of the R&D Group to support Olympus in creating value that exceeds customer expectations on into the future and in constantly providing competitive products and services. We will therefore continue striving to enhance and develop new core technologies.

## R&D and Manufacturing Strategy Framework

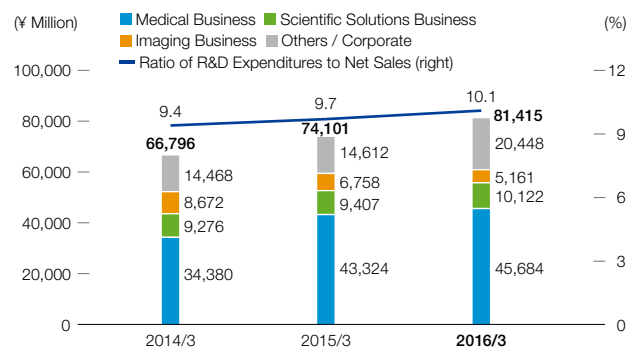


## Overview of R&D Activities

In fiscal 2016, total R&D expenditures increased 9.9% year on year, to ¥81.4 billion, and the ratio of R&D expenditures to net sales rose 0.4 percentage points, to 10.1%. Since the April 2015 shift to the matrix style of business operation, we have been stepping up the development of Companywide core competencies. In addition, we conducted more than 70%\* of R&D expenditures in the Medical Business, and we have succeeded in developing and subsequently launching a surgical endoscopy system equipped with 4K technologies and single-use, high-frequency knives. In the Imaging Business, R&D expenditures were down 23.6% year on year following the reduction of our compact camera lineup and the revision of product cycles.

\* Ratio of R&D expenditures excluding Others / Corporate

## R&D Expenditures / Ratio of R&D Expenditures to Net Sales



## Core Technology Management Strategy

Our core technology management strategy is aimed at creating new customer value. To this end, the strategy categorizes core technologies linked to customer value into five technology groups based on customer workflows, thereby clarifying our goal with regard to each technology group and enabling us to step up related efforts. Moreover, by organizing and sharing the core

technologies developed in each business, we will deploy technologies throughout the Company and optimize the allocation of management resources from a Companywide perspective. At the same time, we will continually enhance the core competencies and intellectual property strategies that support core technologies in order to raise the overall level of these core technologies.

### Core Technology Groups Arranged from the Perspective of Workflows to Create Customer Value



#### Technology Groups of Strength

##### I. Access technologies

- Expand range of diagnosis by further reducing diameter and improving bend operability of endoscopes
- Expand range of inspections by evolving remote observation technologies for industrial endoscopes
- Expand range of photography with high-speed autofocus and image stabilizers



Technology targeting quick insertion of scopes into deep structure of lumens

##### II. Imaging and sensing technologies

- Improve diagnosis capabilities of endoscopes and operability during treatment with 4K, 8K, and 3D images
- Enable real-time live cell observation
- Enhance macro photographs with Focus Stacking

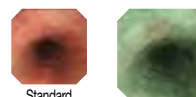


Macro photograph using Focus Stacking to keep picture in focus at all depths

#### Technology Groups to Be Strengthened

##### III. Recognition and analysis technologies

- Utilize deep learning to improve image diagnosis and inspection and analysis capabilities



##### IV. Treatment and therapeutic technologies

- Bolster endotherapy device lineup
- Expand range of uses for surgical energy devices
- Reduce surgeon burden with surgery support robots



Treatment support system realizing free movement in alimentary canal lumens

##### V. Report and evidence technologies

- Address diagnosis and treatment guidelines by strengthening evidence acquisition systems
- Utilize ICT to support endoscopic workflow



Forum discussing potential for ICT to contribute to improved medical quality

## C O L U M N

### Creation of Valuable Technologies Based on Opto-Digital Technology

One of the characteristics of the R&D Group's involvement with 16CSP is that it entails incorporating the technology strategies of business units while also setting forth a strategy for strengthening the R&D function.

When previously formulating technology strategies, we had to consider how we would contribute to business units with technology. In this process, it was important for us to properly understand the type of products to be developed in each business, or the direction that would be taken in advancing operations, and then to create and develop technologies accordingly. However, this changed when we shifted to the matrix style operational structure in April 2015. This move resulted in a transition from business-specific R&D divisions to a single, cross-organizational division that consolidates all relevant personnel, technologies, and other management resources. As a result, the R&D Group was born, not as a business support division, but rather as an active group that assumes responsibility for the R&D needs of business units.

#### Haruo Ogawa

Chief Technology Officer (CTO) / Head of R&D Group



While businesses had previously determined their own direction for R&D, the R&D Group unites these activities under a single, shared perspective and guides them through the common core technology management strategy. I am confident that advancing R&D in this manner will lead to the creation of unprecedented new customer value.

Our duties will not be limited to strengthening technologies. Quite the contrary, the R&D Group will endeavor to reinforce its very constitution by improving R&D efficiency, creating global development systems, and strategically cultivating human resources. The establishment of clear policies for the development process and the enhancement of R&D systems is also something that differs from previous R&D strategies. Under our current strategy, we will optimally utilize management resources from around the world on a Companywide basis and streamline development through the introduction of a V-model development process that promotes exhaustive development and verification measures.

# Intellectual Property Activities

## Overview of Intellectual Property Strategies

### Intellectual Property Strategies Linked to Business Strategies

Olympus formulates its intellectual property strategies in conjunction with its corporate strategic plans and is advancing intellectual property activities that facilitate its management and business activities.

Under the intellectual property strategies that were formulated based on the medium-term vision, the previous corporate strategic plan announced in June 2012, each business unit clearly defined the core technologies for which it requires a strong patent base and developed its patent portfolio accordingly. In Companywide core

competence areas, intellectual property activities were strengthened from a long-term perspective and on an organization-wide basis that encompassed business units and R&D divisions. In this manner, we worked to increase Companywide efficiency and maximize intellectual property value. Under 16CSP, the new corporate strategic plan that commenced in April 2016, we will continue the aforementioned intellectual property strategies while also pushing forward with activities based on the 16CSP R&D Function Strategy, which includes our core technology management strategy.

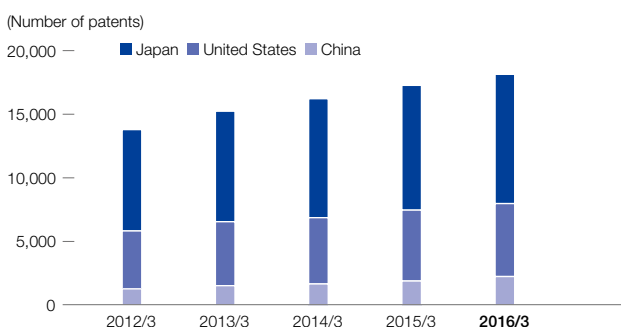
## Business Contributions from Intellectual Property

### Intellectual Property Activities Matched to Business Portfolio and Expansion Initiatives

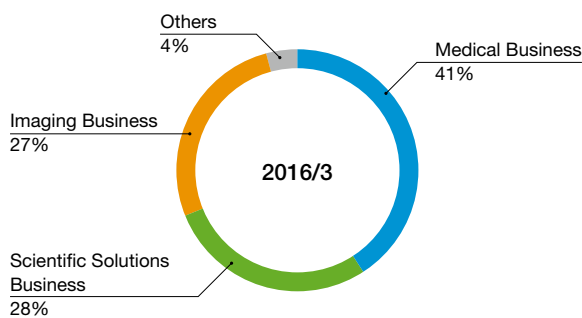
As our business activities grow more global, we have defined the policy of increasing the number of patents held overseas, and we are advancing patent acquisition efforts accordingly. Looking at patent holdings of individual businesses, more than

40% of the Company's patents are associated with inventions related to the Medical Business, which is the central pillar supporting the expansion of Olympus' earnings and business. Of the remainder, nearly 30% is associated with Scientific Solutions Business inventions and roughly the same amount is accounted for by Imaging Business inventions (as of March 31, 2016).

### Number of Patents Held by Country



### Share of Patent Applications by Business Portfolio



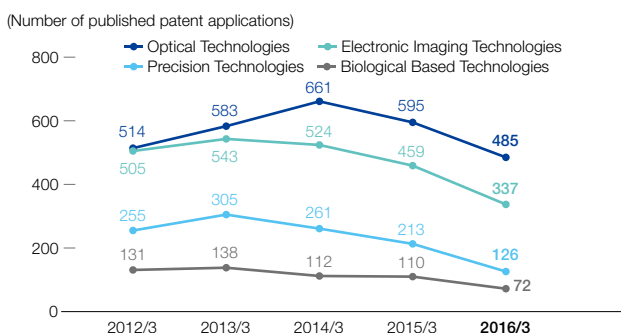
## Intellectual Property Activities in Core Competence Areas

### Number of Patent Applications Published in Japan and Overseas in Core Competence Areas

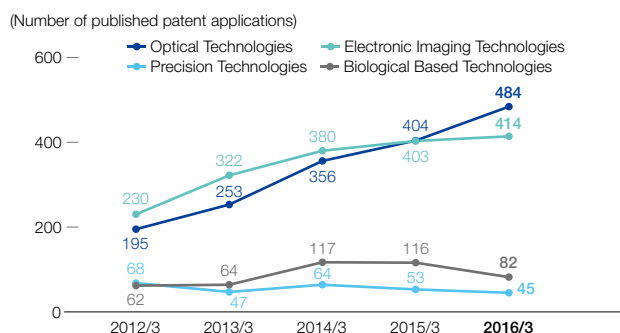
In implementing the above-mentioned policy of increasing the number of overseas patents, we had to be more selective when submitting patent applications in Japan, and the number of patent applications published in core competence areas is

decreasing in Japan as a result. Overseas, the overall number of patent applications published is increasing, particularly with regard to optical technologies and electronic imaging technologies. In the future, we will continue to bolster our global patent portfolio by submitting applications in the United States, China, and other countries.

### Number of Patent Applications Published in Japan in Core Competence Areas



### Number of Patent Applications Published Overseas in Core Competence Areas



# Human Resources

Olympus views its human resources as the most important management resource to ensuring its sustained growth. We therefore respect the individuality of employees as we seek to become an organization that can furnish swift and systematic responses to changes in the operating environment.

## Basic Policy regarding Human Resources

Olympus faces a rapidly changing operating environment. In order for the Company to grow and return value to society, it is crucial that all employees pursue self-growth as independent and socially minded craftspeople to become able to respond appropriately to social change. Olympus thus believes in the importance of respecting the individuality and unique skills of its employees and, trusting in their ambition and enthusiasm, accurately evaluating their achievements and providing appropriate rewards.

For this reason, we base human resources systems on merits and achievements and focus on fostering all employees while encouraging independent skill development.

## Employees' Personal Growth as the Foundation for Business Activities

Olympus defines the successes it should pursue as a company in terms of business performance, corporate constitution, and the personal growth of its employees.

We cannot anticipate ongoing corporate growth through the pursuit of short-term improvements in business performance. If Olympus is to continue to grow, it will be absolutely essential to achieve a corporate constitution that exhibits true competitiveness on the global stage and can generate stable performance.

There can be no doubt that it will be our employees who will build this constitution. It can therefore be said that employees' personal growth forms the foundation for all of our business activities. We have defined the following policies to establish a corporate culture that places strong emphasis on this fact.

## Basic Policy on Human Resources Systems

**“We will maximize the value and attractiveness of work as a driving force for personal growth and organizational development.”**

### Vision

#### Management

Management will continually strengthen the potential of the organization by helping individual members to reach their full potential through training and guidance that is centered on the value and attractiveness of work (new work philosophy).

#### Individuals

Individuals will fulfill their expected roles within the organization by achieving personal growth through work (Group philosophy).

#### Organization

The organization will build solid relationships based on trust through the sharing of a vision toward which everyone can work (shared aspirations).

## Major Initiatives

### 1. Work-Life Integration

Olympus has been promoting Work-Life Integration to help employees generate work-life synergies by maintaining a good work-life balance. We thereby seek to enable them to maximize their abilities and proactively continue their careers even during periods when they need to take care of their children or other family members.

### Support Systems Introduced Starting from Fiscal 2014

- Telecommuting system
- Reentry system
- Task flex system

### 2. Acquisition of “Kurumin” Certification

Olympus has continued to establish action plans based on the Act on Advancement of Measures to Support Raising Next-Generation Children through which it has advanced various initiatives, including promoting Work-Life Integration, facilitating understanding in this regard, and introducing a telecommuting system. These efforts have been recognized by the Ministry of Health, Labour and Welfare, which designated Olympus as a “Kurumin” certified company in fiscal 2016.



### 3. Empowerment of Female Employees

The empowerment of female employees is one of the most important tasks to be addressed in promoting Work-Life Integration. For this reason, we formulated an action plan as a general business operator in accordance with the Act on Promotion of Women's Participation and Advancement in the Workplace, and we disclosed this plan in April 2016. We interviewed female employees during the course of preparing this plan in order to analyze the circumstances related to the ability for women to exercise their skills and participate in the workplace from both a qualitative standpoint and a quantitative standpoint. Based on the findings, we set the targets of doubling the number of female managers from fiscal 2016's

### 4. Manufacturing Technician Training

Olympus manufacturing features high precision and extreme compactness and high-mix, low-volume production, both of which are difficult to achieve through automated production. Accordingly, it is our skilled manufacturing technicians that underpin manufacturing operations. Olympus regards manufacturing technicians as an important source of the value it provides. The skills of such technicians are categorized into six levels and staff are encouraged to improve their skill level in a planned manner. We classify the technicians with skills of level 1 to 3 as "Skilled Workers" and those with skills of level 4 or greater as "Highly Skilled Workers." Highly Skilled Workers are certified as a Manufacturing Advisor (MA) at level 4, a Manufacturing Supervisor (MS) at level 5, and a Manufacturing Master (MM) at the final level 6. Training is given according to

number by fiscal 2020 and realizing a more than 25% ratio of women among new graduates joining the Company in April 2019, of which 40% will be hired for office positions and 20% for engineering positions. Initiatives for achieving these targets are currently under way.

#### Performance

	2016/3
Ratio of female managers	1.4%
Ratio of female full-time employees	13%
Ratio of female new graduate hires	19%

each level, from newly joining staff members to MM technicians.

Recently, Olympus has been extending manufacturing technician



training programs overseas in pace with the overseas expansion of its manufacturing operations, and these programs will continue to be advanced around the world in the future.

#### Number of Highly Skilled Workers

	2013/3	2014/3	2015/3	2016/3
Number of newly qualified	6	11	6	13
Total qualified	177	188	194	207

## COLUMN

### Human Resources, a Company's Greatest Asset

More than 30,000 people work at Olympus, and we realize that there will be no growth for the Company if each and every one of these employees is unable to exercise their talents to the fullest. Our human resources strategy aims to achieve our vision for Olympus by placing the right person in the right position. But, this concept was not completely entrenched throughout the organization previously. We fixed this issue, however, with the shift to a matrix style of business operation during fiscal 2016. This move collected the HR and training personnel that had been dispersed among different functions into a single division, creating a system that allows for HR functions to be exerted on a cross-organizational basis. As a result, we are now able to more thoroughly utilize our human resources for maximizing Company success.

Currently, more than 70% of sales come from overseas, and I therefore feel that Olympus is the type of company that

#### Kiichi Hirata

Chief Administrative  
Officer (CAO)



can grow by developing its business from a global standpoint. I supervise back-office divisions responsible for HR and other matters. In the past, there was an extent to which we were inclined to leave overseas matters to the discretion of overseas subsidiaries, a sentiment that prevented us from fully embracing the globalization trend.

Today, the world has become smaller than ever due to the development of the Internet and logistics systems. Accordingly, work related to HR and general affairs is now able to spread outside the borders of Japan. As such, neither individuals nor the Company will be able to grow if we remain satisfied to let "someone else" handle matters overseas. Looking ahead, we remain committed to making Olympus into a truly global company, which will also be important to further expanding the range of customers that choose it.

# Contribution to Society

## Approach to CSR

Through its CSR activities, the Olympus Group responds to the needs and expectations of society and fulfills its obligations and responsibilities.

We believe that to justify the continuing existence of Olympus as a company and to help people enjoy healthier and happier lives, we must fulfill our responsibilities through dialogue with all stakeholders (persons and organizations with which we interact through our business activities), including customers, suppliers, shareholders and other investors, as well as employees and their families, local communities\*, and international communities\*.

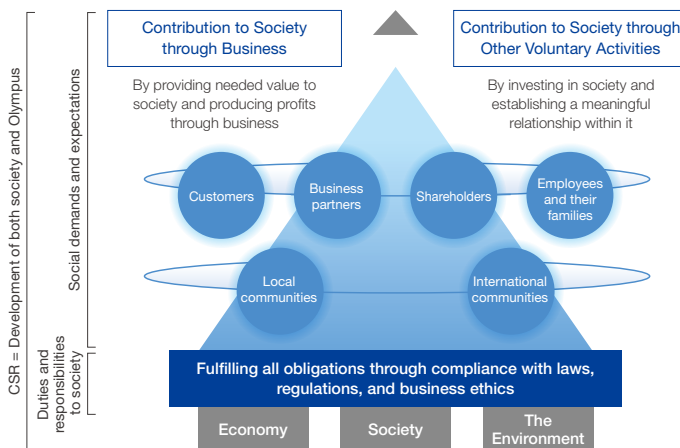
\* Local communities and international communities include general citizens, NGOs, NPOs, and governments.



Additional Information on CSR Activities:  
<http://www.olympus-global.com/en/csr/>

## CSR Concept of the Olympus Group

### Social IN



## Establishment of the CSR Committee

Olympus established the CSR Committee under the chairmanship of the president to strengthen its CSR activities and ensure the realization of its “Social IN” corporate philosophy. By assisting the president in his decision making and promoting and monitoring the implementation of decisions, the CSR Committee helps to disseminate and consolidate CSR within

the Olympus Group.

Several promotion committees have been established under the CSR Committee. These committees work with the CSR Committee to study measures and develop plans and promote their implementation in the functional areas for which they are responsible.

## TOPICS

### Social Contribution Activities Characteristic of Olympus

#### Training of Endoscopists in Emerging Countries

To contribute to the development of medicine in emerging countries, Olympus offers support for fostering endoscopists in such countries. In fiscal 2016, we were selected by Japan International Cooperation Agency (JICA) to take part in a project for aiding in the social and economic development of emerging countries by spreading private-sector technologies. Through this project, we provided training opportunities for endoscopists in Thailand and Indonesia. Medical associations and institutions in these countries and in Japan cooperated in this project to dispatch Japanese endoscopists to lead training sessions in all three countries. These training sessions served as opportunities for fledgling endoscopists to learn about the latest endoscopic surgeries and Japan’s unique surgical technician certification system while receiving guidance from seasoned veterans.



Training for the fostering of endoscopists

#### Contribution to Medical Care for Socially Disadvantaged People and Migrants

Olympus Group companies in Europe participated in a project called “Migrants Medicine,” which offers medical care to people without health insurance and is run by a local German organization with the support of “Doctors of the World,” which is an international humanitarian organization. During the 2015 Christmas season, our subsidiaries donated 13,000 EUR in total to the project and supported it to offer special medical care for women and children in a district with a high percentage of socially disadvantaged residents and a high proportion of migrants. Through the project, our subsidiaries also donated microscopes to a health service center for migrants, contributing to faster, and more accurate diagnosis for many women and children.




Offering medical care by “Migrants Medicine”

# Harmony with the Environment

## Environmental Management

We are working under the Olympus Group Environmental Charter to maintain a healthy environment and contribute to the creation of a society capable of sustainable development

by establishing environmental management systems and reducing environmental impact.

 Environmental Management:  
<http://www.olympus-global.com/en/csr/involvement/management/>

## Product, Technology, and Facility Initiatives

 <p><b>Create Olympus Eco-Products</b>          (Achieve impeccable product performance while reducing environmental impact)</p> <p><b>ECO-PRODUCTS</b></p> <hr/> <p><b>Surgical endoscopy system</b></p>  <p><b>4K camera head OLYMPUS CH-S400-XZ-EB</b></p> <ul style="list-style-type: none"> <li>High resolution unique to 4K</li> <li>42% reduction in packaging volume</li> </ul> <hr/> <p><b>Mirrorless cameras</b></p>  <p><b>OLYMPUS PEN-F</b></p> <ul style="list-style-type: none"> <li>High resolution realized through 20.3 megapixel Live MOS sensor and 5-axis voice coil motor image stabilization</li> <li>Low electricity consumption and easy disassembly (easy battery removal)</li> </ul>	 <p><b>Develop Technologies That Contribute to the Environment</b></p> <hr/> <p><b>Product that contributes to lower CO<sub>2</sub> emissions for society</b></p>  <p><b>IPLEX RX/RT industrial videoscope</b></p> <ul style="list-style-type: none"> <li>Capable of inspection of equipment interiors and diagnosis of issues</li> <li>Sharp and clear image recreation of even minuscule flaws</li> <li>Usable for examination of wind power generation facilities and increasingly more fuel efficient automobile and aircraft engines</li> </ul> <hr/> <p><b>Product that aids in analysis of harmful substances and resource recycling</b></p>  <p><b>DELTA Element handheld XRF analyzer</b></p> <ul style="list-style-type: none"> <li>Capable of identification and measurement of amounts of substances contained in target article</li> <li>Portable and easy to use</li> <li>Able to analyze harmful substances contained in products</li> <li>Usable for analysis of harmful substances in soil</li> <li>Easy sorting of recyclable materials through analyses of scrap</li> </ul>	 <p><b>Reduce Facility Environmental Footprints</b></p> <hr/> <p><b>New factory building at Shirakawa site</b></p> <ul style="list-style-type: none"> <li>Installation of solar panels and cold water thermal storage tower</li> </ul>  <hr/> <p><b>Olympus Surgical Technologies Europe (Germany)</b></p> <ul style="list-style-type: none"> <li>Installation of insulation and solar panels</li> </ul> 
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## Summary of Results of Activities in Fiscal 2016

Priority Policy		Targets	Results	Future Plans
Promotion of environmental management	Enhancement of environmental governance system	Reinforcement of environmental governance system on global level	<ul style="list-style-type: none"> <li>Established global environmental management regulations</li> <li>Entrenched practice of operating environmental information management platform</li> <li>Trained ISO auditors (80 individuals)</li> </ul>	Continue reinforcing environmental governance system on global level through global coordination and improvement of environmental management system
	Compliance with laws and regulations	Continued improvement of processes for complying with environmental laws	<ul style="list-style-type: none"> <li>Continued implementation of regulations related to products and facilities</li> <li>Instituted chemical substance management training at facilities (Trained 420 individuals in Japan)</li> </ul>	Improve processes for complying with environmental laws related to products and facilities on ongoing basis
Environmental initiatives throughout product life cycles	Product-related initiatives	Create Olympus Eco-Products	Created eco-friendly products in all business areas (31 new products, 556 products in total)	Continually create eco-friendly products matched to business characteristics
	Facilities-related initiatives	Energy consumption rate: 7.73% or more reduction in FY2021 (relative to FY2013; in Japan)	Energy consumption rate: Improved by 7%	Reduce energy consumption rate through manufacturing improvements, introduction of energy-saving equipment and renewable energy systems, and other activities matched to regional characteristics
	Environmental contribution activities	Environmental contribution activities under theme of "Water Circulation—Protection of Forests, Rivers, and Oceans"	<ul style="list-style-type: none"> <li>Conducted river cleanup and community greenification activities at bases worldwide</li> <li>Continued coral planting and nature school (3 times) initiatives from fiscal 2015</li> </ul>	Advance ongoing social contribution activities