

# University of Tsukuba Integrated Report 2019





## To Our Stakeholders

It has been the practice of the University of Tsukuba to publish an annual financial management report to explain financial information of the university, to deepen your understanding of that information, and at the same time to fulfill our obligation of accountability to you as our stakeholders.

This year, instead of our regular financial management report, we decided to publish an integrated report that also includes non-financial information such as the university's goals, initiatives, and performance in activities to give you greater insight into the university's various activities including education and research.

Through this report, we hope not only to fulfill our obligations of accountability, which is our social responsibility, but also to share with all of you the university's vision of the future we intend to aim for and to connect this vision with ongoing improvement for the sustainable growth of the university based on your views and dialogue with you.

In preparing this integrated report, we referred to other reports compiled by private enterprises and other large universities as well as frameworks provided by the International Integrated Reporting Council. In the future, we intend to expand and add to the contents of this report to publish and deliver to you a full integrated report.

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\* When reading this report, please note that figures of less than one unit in tables and diagrams have been rounded and may not coincide with the total.





About the University



Founding Philosophy

The University of Tsukuba aims to promote free exchanges and close relationships in basic and applied sciences with educational and research organizations and academic communities in Japan and other countries. While reaping the benefits of interdisciplinary cooperation, we intend to pursue education and research to cultivate men and women with creative intelligence and rich human qualities and to contribute to the progress of science and culture.

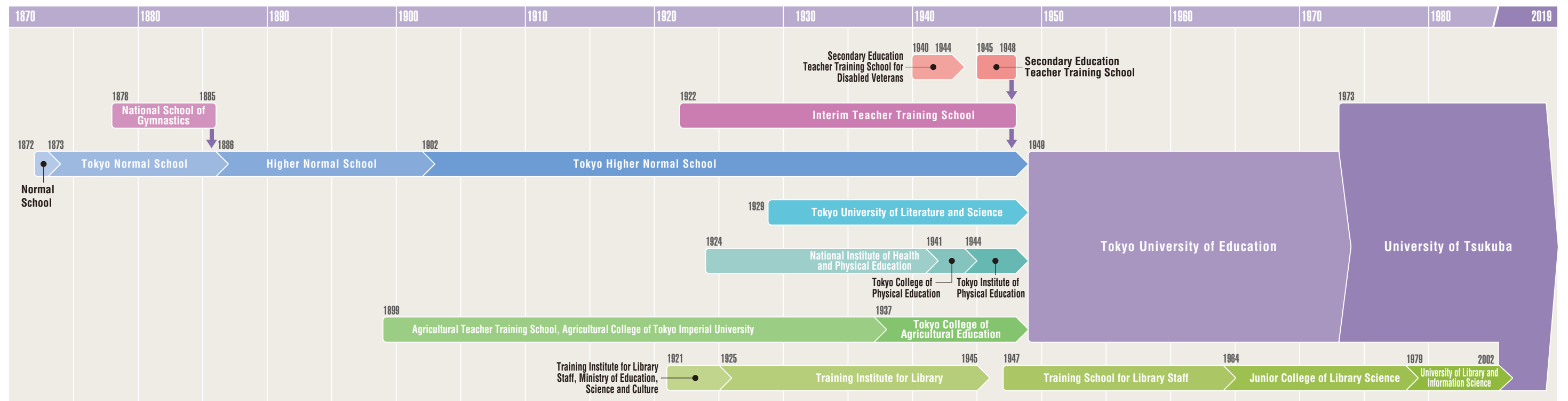
In the past, Japanese universities tended to remain confined to somewhat narrow, specialized fields, which led to stagnation and rigidity in education and research and alienation from everyday society. As an institution looking to the future, the University of Tsukuba is committed to being a university open to all people within and outside Japan. Toward this end, while continually responding to changes in today's society, the university is determined to develop new education and research functions and a management organization highly international in character with diversity and

flexibility.

The university will also establish an accountable management framework to implement these activities.



History from the University's Founding



From Tokyo to Tsukuba

The Tokyo University of Education, our predecessor school, was established as an institution for higher education and was comprised of four schools: Otsuka campus with its three Faculties of Literature, Science, and Education; Hatagaya campus with its Faculty of Physical Education; Komaba campus with its Faculty of Agricultural Education; and the Okubo district facility with its Optical Laboratory. The Otsuka district facility, serving as the main campus at the time, was very small and also had the geographical problem of being remote from the campuses of both the Faculty of Physical Education and the Faculty of Agricultural Education. At the very time the university was considering relocating the campus, the Japanese Government launched the Tsukuba Science City concept, and a decision was made to move the university to Tsukuba in 1973.



History of the University of Tsukuba

Our university was reborn in Tsukuba Science City in 1973 as a comprehensive university for pursuing the study of a wide range of disciplines from literature, science and physical education to the arts. Although the University of Tsukuba is a new university with only 40 some odd years since establishment, its history dates back to the Normal School, founded in 1872 as the first institution of higher education in Japan. The immediate predecessor of our university, the Tokyo University of Education, was established in 1949 with the consolidation of four institutions: the Tokyo Higher Normal School, Tokyo University of Literature and Science, Tokyo College of Physical Education and Tokyo College of Agricultural Education.

Since its founding, the University of Tsukuba has continued to pursue new reforms and challenges in the Tsukuba area, without becoming complacent with traditions inherited from the Normal School, which supported the development of education that became the cornerstone of Japan's modernization.

- 1872** Normal School is founded in Tokyo
- 1873** Normal School is renamed Tokyo School of Teachers
- 1886** Tokyo School of Teachers is renamed Higher Normal School
- 1902** Higher Normal School is renamed Tokyo Higher Normal School
- 1929** Tokyo University of Literature and Science is established
- 1949** Tokyo University of Education is established under the National School Establishment Act
- 1973** University of Tsukuba is established under the Law for the Partial Amendment of the National School Establishment Act
- 2004** University of Tsukuba is established as a national university corporation under the National University Corporation Act



Education & Research Organizations (as of May 1, 2019)

Education Organizations

**Graduate Schools**

- Graduate School of Humanities and Social Sciences
- Graduate School of Business Sciences
- Graduate School of Pure and Applied Sciences
- Graduate School of Systems and Information Engineering
- Graduate School of Life and Environmental Sciences
- Graduate School of Comprehensive Human Sciences
- Graduate School of Library, Information and Media Studies
- Master's Program in Education
- School of Global and Integrative Majors (Degree Programs)

**Undergraduate Schools**

- School of Humanities and Culture
- School of Social and International Studies
- School of Human Sciences
- School of Life and Environmental Sciences
- School of Science and Engineering
- School of Informatics
- School of Medicine and Medical Sciences
- School of Physical Education, Health and Sports Sciences
- School of Art and Design

**Affiliated Schools**

- Elementary School, University of Tsukuba
- Junior High School at Otsuka, University of Tsukuba
- Junior High School at Komaba, University of Tsukuba
- Senior High School at Otsuka, University of Tsukuba
- Senior High School at Komaba, University of Tsukuba
- Senior High School at Sakado, University of Tsukuba
- Special Needs Education School for the Visually Impaired, University of Tsukuba
- Special Needs Education School for the Deaf, University of Tsukuba
- Special Needs Education School for the Mentally Challenged, University of Tsukuba
- Special Needs Education School for the Physically Challenged, University of Tsukuba
- Special Needs Education School for Children with Autism, University of Tsukuba

**Education and Student Support Centers**

- Center for Education of Global Communication
- Sports and Physical Education Center
- Admission Center
- Health Center

Research Organizations

**Faculties (Faculty Organizations)**

- Faculty of Humanities and Social Sciences
- Faculty of Business Sciences
- Faculty of Pure and Applied Sciences
- Faculty of Engineering, Information and Systems
- Faculty of Life and Environmental Sciences
- Faculty of Human Sciences
- Faculty of Health and Sport Sciences
- Faculty of Art and Design
- Faculty of Medicine
- Graduate School of Library, Information and Media Science
- Faculty of Transdisciplinary Research

**Advanced Research Centers**

- Center for Computational Sciences
- Life Center for Survival Dynamics
- Tsukuba-Plant Innovation Center
- Shimoda Marine Research Center
- Plasma Research Center
- Alliance for Research on the Mediterranean and North Africa (ARENA)
- Center for Cybernetics Research
- Center for Research in Isotopes and Environmental Dynamics (CRIED)
- Center for Artificial Intelligence Research
- Proton Medical Research Center
- Mountain Science Center
- Microbiology Research Center for Sustainability
- Advanced Research Initiative for Human High Performance (ARIHHP)
- Transborder Medical Research Center
- Tomonaga Center for the History of the Universe
- Tsukuba Research Center for Energy Materials Science
- University Research Centers

**University Development Centers**

- R&D Center for Precision Research
- Algae Biomass and Energy System R&D Center
- R&D Center for Frontiers of MIRAI in Policy and Technology
- R&D Center for Sport Innovation
- R&D Center for Health Services
- R&D Center for Tailor-Made QOL
- R&D Center for Working Persons' Psychological Support

Affiliated Facilities

**Research Organizations**

- International Institute for Integrative Sleep Medicine (IIS)

**Other Facilities**

- Innovation Medical Research Institute
- Tsukuba Clinical Research & Development Organization (T-CReDO)
- Athletic Department

University of Tsukuba Library

University of Tsukuba Hospital

Basic Information (as of May 1, 2019)

Students	Total No. of students (7th)	Undergraduate students (12th)	Graduate students (6th)	Affiliated school students, etc.
	16,525	9,840	6,685	4,068
Staff	Total number of teachers and staff	Directors	Teachers	Staff
	5,161	11	2,370	2,780
International Exchanges	Foreign teachers and staff	Ratio of international students (2nd)	International exchange agreements	
	148	14%	386 (71 countries and regions)	
Area	Land area (8th)		Building area (6th)	
	12,721,778 m <sup>2</sup> (excluding affiliated schools)		987,808 m <sup>2</sup> (excluding staff housing)	
No. of Recipients	Nobel Prize Recipients		No. of Olympic and Paralympic Medals	
	3	Sin-Itiro Tomonaga (1965 Prize in Physics) Leo Esaki (1973 Prize in Physics) Hideki Shirakawa (2000 Prize in Chemistry)	Olympics 19 16 21	Paralympics 14 22 18

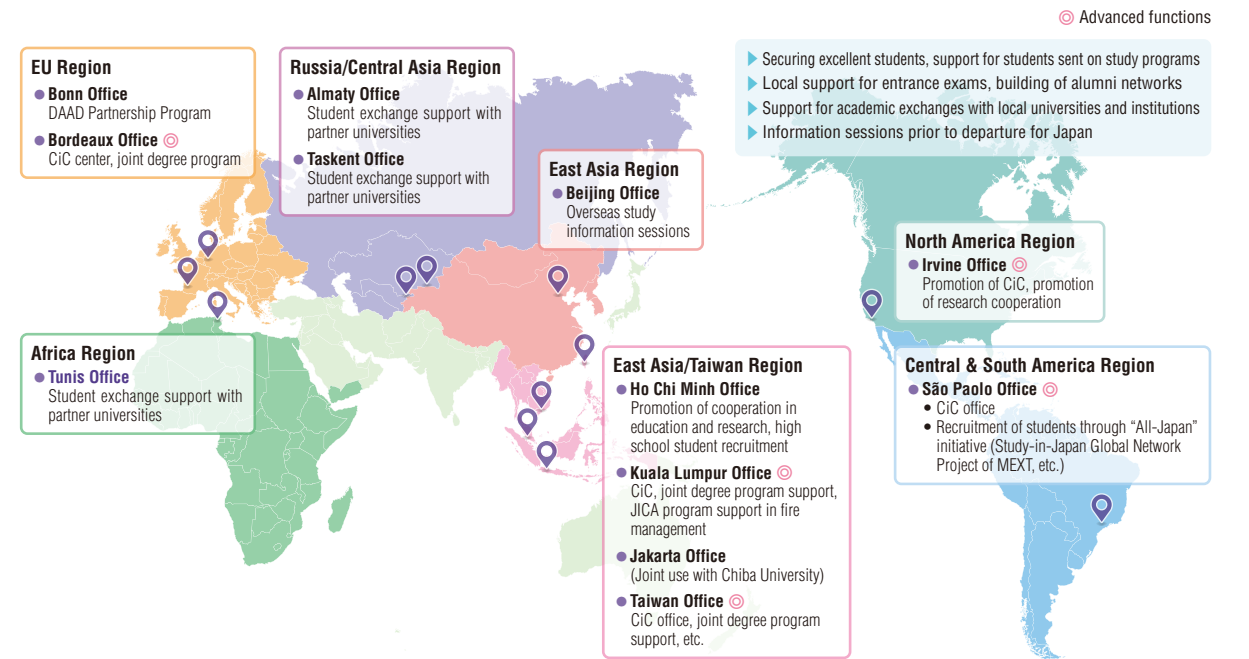
\*The above figures in parentheses indicate the national university corporation ranking of the University of Tsukuba as of May 1, 2018.

Overseas Offices at the University

Under the university's basic policy on internationalization strategy and regions, we have established centers in 12 countries and regions to engage in activities to support international cooperation in promoting education and research activities of the university and

also to provide support when an education or research institution of those countries or regions engages in education and research activities in Japan in cooperation with the university.

University of Tsukuba Overseas Centers (12 Centers in 12 Countries/Regions)



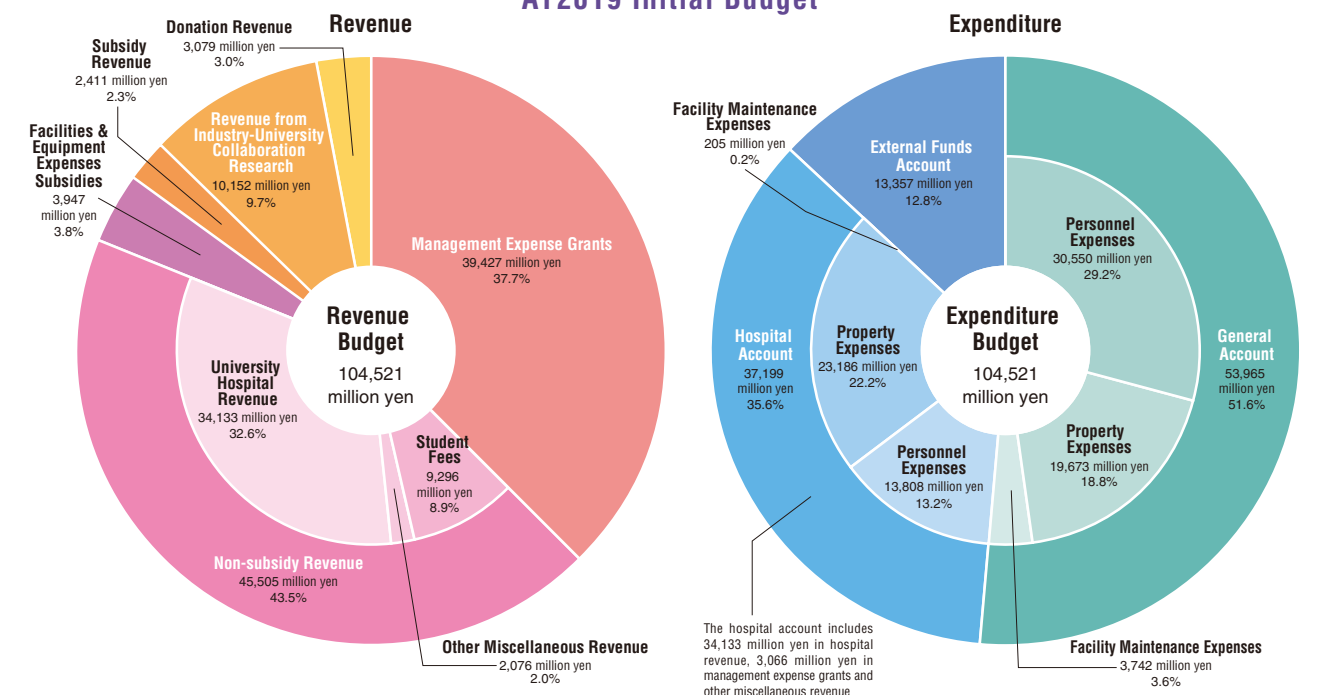
Financial Base

Funds that form the financial base of the university's education and research activities consist mainly of management expense grants from the government, tuition, which is non-subsidy revenue, hospital revenue, and external funds derived from joint research

fees from corporations.

In addition, there are many donations from individuals and companies, and these support various activities of the university.

AY2019 Initial Budget







## Planning and Challenging the Future as Frontrunners



*Kyosuke Nagata*

President, University of Tsukuba

As a new concept university free of conventional ideas of what a university should be, our university has capitalized on its strength of having a wide range of disciplines from basic science to physical education, art, and other disciplines and has made efforts to solve issues on a global scale by always engaging in education and research required by society through the integration of new academic fields. Our university, which began as a university committed to being “open” and promoting “constant reforms,” has played a role as a unique university in Japan in leading university reforms from both a philosophical and statutory perspective.

In today’s turbulent globalized world, we face a host of problems. To enhance and strengthen our role as a center for global education and research that will create knowledge to solve global issues and develop global human resources who will lead in this challenge, we have set five main goals in the Third Mid-term Goal Period.

1. Under high ethical standards, we will pursue sound specialist expertise in a wide range of disciplines related to nature, humans, society and

culture, and we will promote research of the world’s highest level as a leading center in the creation of outstanding knowledge by pioneering interdisciplinary fields, realigning our research functions, and strengthening our internationalism.

- 2. We will accept diverse students from all over the world, build an educational system backed by advanced, cutting-edge research results, which will develop the individuality and abilities of students through degree programs, and we will train men and women capable of developing rich humanity and creative intellect throughout life and working as individuals in a global society.
- 3. As a comprehensive university that offers education with international interchangeability and pursues research activities in various diverse fields at the world’s highest level, the University of Tsukuba will enhance its presence at the center of a network of countries and regions around the world. As a university that has international credibility and competence in communication, the University of Tsukuba will also demonstrate its ability to practice internationalism in everyday life.
- 4. We will play a core role in the innovation creation

center TSUKUBA, with its concentration of science and technology, and we will strengthen our collaboration with educational and research institutions as well as industry. Moreover, we will enhance our education and research functions, and contribute to strengthening Japan’s global industrial competitiveness.

- 5. As we enhance the professional skills and diverse capabilities of faculty and staff, we will work to strengthen information governance and the management base and to redistribute university resources under the leadership of the president. Moreover, through autonomous reforms in education and research functions, we will lead university reforms in Japan as a university capable of responding to changes in the world and society as quickly as possible.

To achieve these goals, we will continue our relentless efforts to fulfill the role society requires of us. As we look closely at the challenges of tomorrow, we look forward to carefully facing our daily research, education, and students with care.

We look forward to your continued support.





## Planning and Challenging the Future as Frontrunners

### Research

[See page 10 for details]

Promoting International Leading Edge Research

### Education

[See page 12 for details]

Training Human Resources Capable of Working Independently in a Global Environment



### Founding Principle: An Internationally Open University

#### Mission of the University:

Create knowledge to solve global issues and develop global human resources who will lead in this challenge

### University-Industry Collaboration

[See page 14 for details]

Contributing to the enhancement of Japan's global industrial competitiveness

### International

[See page 16 for details]

Realizing a University that Practices Internationalism on an Everyday

### Tsukuba University Hospital

[See page 17 for details]

Strengthening the "True" Functions as an Affiliated Hospital of a Comprehensive Research University

### Affiliated Schools

[See page 18 for details]

Constructing an Education Model for Primary, Secondary and Special Support Schools

### University Management [See page 19 for details]

Transformation from Operating to Managing a University by Strengthening the Management Foundation and Information Governance

## Achieving Our Goals



Goals

Promoting research of the world's highest level

To develop leading-edge research at the world's highest level in both research that deeply explores the truth and research aimed at returning research results to society in broad academic disciplines, we aim to achieve the following.

- ① We will steadily proceed with fundamental research by reviewing and centralizing our existing research center system, and we will work toward making a dramatic leap forward in interdisciplinary research through the introduction of new systems and collaboration with universities and other institutions in Japan and other countries.
- ② We will boldly reform research systems within the university.

Main Measures

① Steady implementation of fundamental research and working toward a dramatic leap forward in interdisciplinary research

We will form international joint use and joint research centers in fields where our university has strengths and notable characteristics such as mathematical and material science, environmental energy, information computational science, life and medical sciences, humanities and social sciences, and sports science by strengthening cooperation with research institutes including universities in Japan and overseas, engaging in interactive joint research and large-scale international joint research, and inviting overseas research units to the university.

We will further accelerate our priority research support, and promote research at the world's highest level centered on research at the International Institute for Integrative Sleep Medicine (IIS), the Center for Computational Sciences, the Life Science Center for Survival Dynamics, Tsukuba Advanced Research Alliance (TARA), Tsukuba-Plant Innovation Research Center, and the Shimoda Marine Research Center.

Overview of IIS

IIS was established as an institute for the study of "sleep medicine," which is an integrated field of research encompassing the three fields of neuroscience, drug discovery science, and experimental medicine. IIS is a leading international institute that aims to contribute to improvement in human health by shedding light on the mysteries of sleep and developing methods of treatment for sleeping disorders.



Overview of TARA

The mission of the TARA Center is to elucidate unknown aspects of life, such as evolution or responding to or defending the environment, and to discover and understand potential survival strategies of living things to enable humanity to live in harmony with the environment and achieve sustainable development.



② Bold reforms in university research systems

To promote basic research, interdisciplinary research, and research based on the university's strategies in a well-balanced manner, and to ensure that support and empowerment of research organizations are on the whole consistent as well as based on assessment, the university roughly divides the university research organizations into advanced academic research centers and development research centers based on the results of a research center review for restructuring, reorganization, and consolidation, and introduces a system for evaluating academic advanced research centers every five years and certifying them (four levels: R1 to R4). The research and development centers engage in research activities aimed at social implementation and all of their operating costs are covered by external funding.

Together with the introduction of this system, the university will convert research centers to education and research support centers, and will consolidate, reorganize and convert research centers to research units.

Overview of the Center for Cybernics Research (CCR)

A new field of interdisciplinary research centered on humans, robots, and informatics, "Cybernetics" integrates a wide range of other fields such as brain and neuroscience, behavioral science, robotics, information technology (IT), artificial intelligence, system integration technology, physiology, psychology, philosophy, ethics, law and business administration.

As an international cybernetics research and development center that closely links people, technology and society, CCR engages in collaboration with partners in Japan (such as CYBERDYNE Inc., an innovative company that implements R&D results in society and promotes virtuous cycle innovation) and international collaboration with partners in the EU and the United States through the integration of medicine and engineering, new industry-government-university private partnerships, and regional and international partnerships.

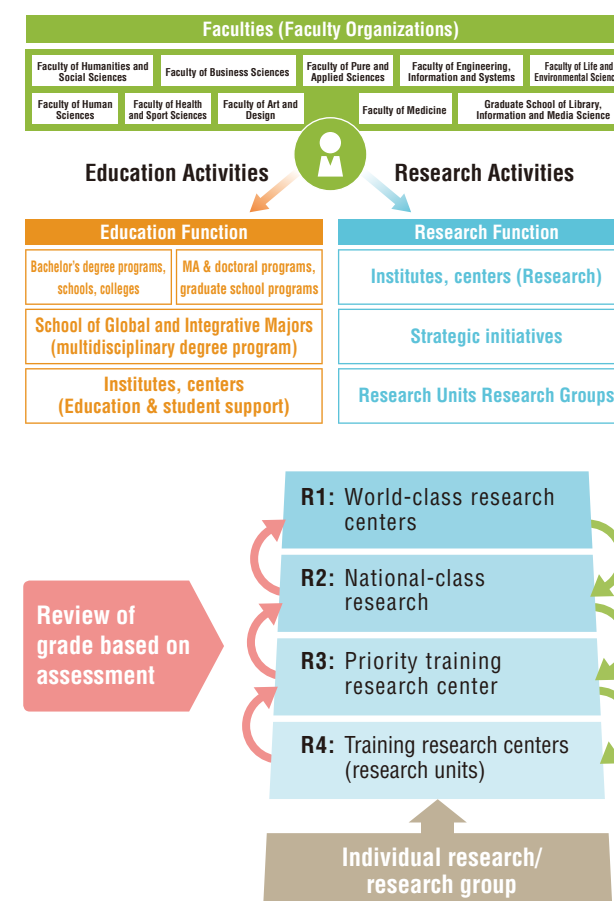


Specific Initiatives

Establishment of an effective research promotion system based on research growth stages and classification of research centers

To continuously generate new strengths and characteristics while allocating priority to the university's strengths and characteristics, we must construct a "research cycle system" as an effective framework for promoting research based on growth stages of the research. As one measure for building a research cycle system and activating the metabolism (turnover) of the university's research as a whole, the university will categorize the research centers into functions (advanced research centers, research support centers). It will then grade the advanced research centers according to

four classifications and allocate priority and strategic resources based on their classification as follows: R1: world-class research centers, R2: national-class research centers, R3: priority training research centers, and R4: training research centers (research units). Furthermore, to assess each research center every five years (with an interim assessment in the third year), the university will deliberate on a center action plan, which will form the basis of future assessments, and move ahead with the preparation of an assessment outline ahead of establishing an assessment system.



Advanced Research Centers

Classification	Name of Center
R1: World-class research centers	Center for Computational Sciences
	Life Center for Survival Dynamics
R2: National-class research centers	Shimoda Marine Research Center
	Tsukuba-Plant Innovation Center
	Plasma Research Center
	Alliance for Research on the Mediterranean and North Africa (ARENA)
	Center for Cybernetics Research
	Center for Research in Isotopes and Environmental Dynamics (CRIED)
	Center for Artificial Intelligence Research
R3: Priority training research centers	Proton Medical Research Center
	Mountain Science Center
	Microbiology Research Center for Sustainability (MICS)
	Advanced Research Initiative for Human High Performance (ARIHHP)
	Transborder Medical Research Center
	Tomonaga Center for the History of the Universe
	Tsukuba Research Center for Energy Materials Science
University Research Centers	

Progress of KPIs of the Third Mid-Term Goals and Mid-Term Plans

KPI	AY2016 Achievement	AY2017 Achievement	AY2018 Achievement
Achieve a position within the world's top 100 in a substantial number of research areas	Sports-related Subjects (QS World University Ranking #26)	Sports-related Subjects (QS World University Ranking #25) Library & Information Management (QS World University Ranking #37)	Sports-related Subjects (QS World University Ranking #49) Metallurgical Engineering (Academic Ranking of World Universities (Shanghai Jiao Tong University #76 -100)
(Reference) (QS World University Ranking #400 in the area of research)	(Main Areas) Archaeology Art & Design Chemistry Physics & Astronomy Biological Sciences, etc. (19 fields)	(Main Areas) Languages Modern Languages Chemistry Physics & Astronomy Materials Sciences, etc. (16 fields)	(Main Areas) Art & Design Earth & Marine Sciences Physics & Astronomy Linguistics Materials Science, etc. (15 fields)



Goals

Delivering education with international interchangeability

- 1 Deliver education with international interchangeability and train human resources who can play active roles on a global scale.
- 2 Promote education through transborder partnerships with Japanese and overseas universities and R&D enterprises in Tsukuba Science City.
- 3 Recruit diverse, outstanding students from around the world.

Main Measures

1 Training human resources with international interchangeability

By providing education based on a student-centered viewpoint and guaranteeing the quality of education for stakeholders, we will shift our educational curriculum to the one based on degree programs by enriching existing diploma programs and establishing new degree programs, thereby establishing an educational system focused on international interchangeability and international cooperation.

2 Transborder partnerships with Japanese and overseas universities and R&D enterprises in Tsukuba Science City

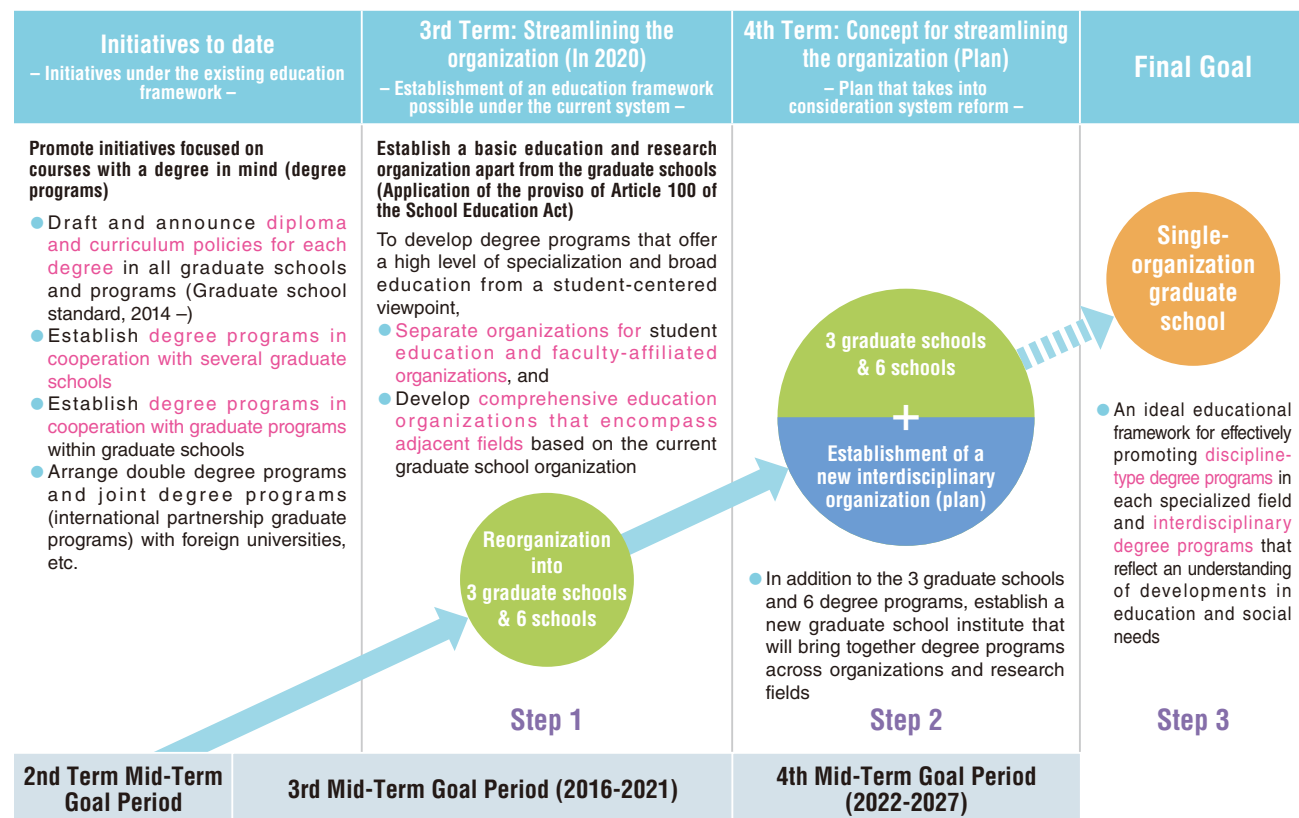
We will implement degree programs in a wide range of fields centered on graduate courses in collaboration with researchers at R&D enterprises and R&D departments of companies in Tsukuba Science City and researchers in relevant fields at the University of Tsukuba.

3 Specific measures for recruiting diverse, outstanding students from around the world

For undergraduate programs, we will conduct a comprehensive entrance examination for disciplines including the humanities, social sciences, and natural sciences appropriate to an educational system that brings out to the fullest the true abilities of the applicants (including international students and persons already in employment).

Plans for the future

Vision for University of Tsukuba Graduate School Reform and Position of Organizational Improvements from the Third Term — Degree programs that will develop students' individuality and abilities under an open education system —



Specific Initiatives

Main New Degree Programs to be Launched

Humanics Degree Program

Based on results of leading doctoral education programs and World Premier International Research Center Initiative (WPI) programs, the University of Tsukuba conceived of the Humanics Degree Program on the theme creating "humanics," a new academic field that incorporates life medical science, science, engineering and informatics, which are strengths of the university. This program was selected as a WISE Program (Doctoral Program for World-leading Innovative & Smart Education). The program aims to cultivate leaders in this new field with doctoral-level knowledge and skills in both research areas of biomedical sciences and physical sciences/engineering/informatics, and the scientific expertise to be able to organically integrate these fields to apply them in society at large. The university began accepting students for this program in April 2019.

The program links research institutions and private enterprises with international competitiveness horizontally across fields within and outside the university to establish a joint framework for research in the fields of biomedical science and science/engineering/informatics. One of the features of the program is the university's provision of orientation and briefing sessions for applicants and prospective students (preadmission program).

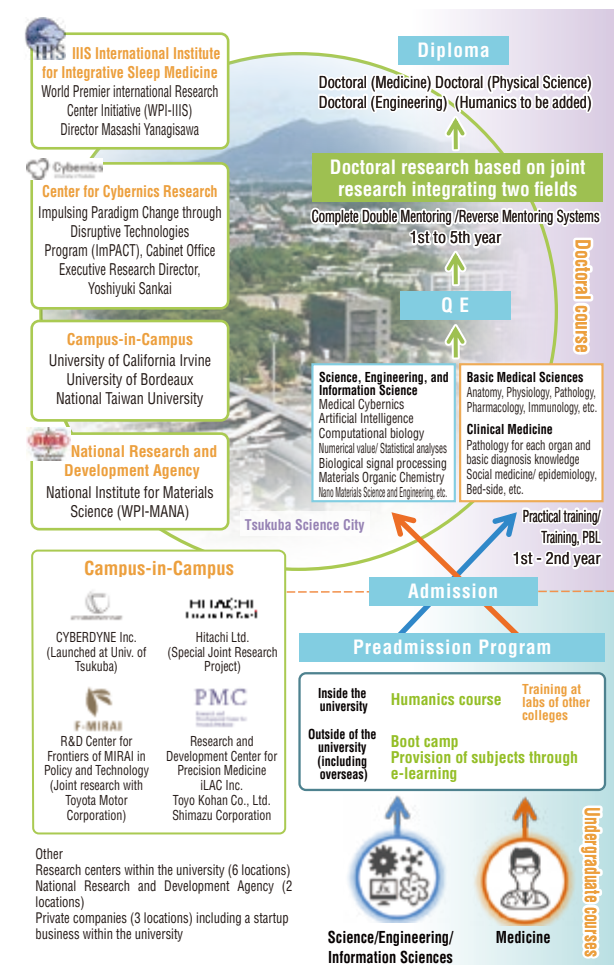
Reform in Enrollment Selection

To nurture the development of young men and women who will lead interdisciplinary research based on sound expertise and specialized knowledge across diverse disciplines, the University of Tsukuba, as a research university, has been studying entrance exam reforms. In line with new liberal arts education that enables students to study and think beyond the confines of segmented areas of specialization, we will introduce a "comprehensive option" in the first semester curriculum for the general selection from the 2021 entrance examination.

Until now, entrance examinations at the university have been based on a system where applicants decide on a college or specialized school at the time of the entrance examination. In addition, we will introduce a "comprehensive option" for selecting applicants outside of the college and specialized school framework, which will account for approximately 25% of students recruited, and will conduct the first semester in two streams: comprehensive option and college/specialized school option.

Students admitted under this "comprehensive option" will join a college or specialized school from the second year of study. This admissions arrangement allows students who want to decide on the kind of college where they can do the research they wish to pursue after commencing their education at university and students who have a wide range of interests and want to study a wide variety of subjects to study various specialized fields after enrollment. In this way, students have the opportunity to discover the path they want to pursue while acquiring a wide range of skills.

Constructing a bidisciplinary education system based on a pre-admission program that paves the way to graduate school and interdisciplinary partnerships with internationally renowned research centers



Progress of KPIs of the Third Mid-Term Goals and Mid-Term Plan

KPI	Target	AY2016 Achievement	AY2017 Achievement	AY2018 Achievement
Establish programs that can be studied in English only	60	49	52	62



Goals

1 Promotion of research of the world's highest level to create innovation

To develop leading-edge research at the world's highest level in both research that deeply explores the truth and research aimed at returning results to society in broad academic disciplines, we will promote research that provides returns to society through ALL TSUKUBA.

2 Industry-university collaboration functions and innovation creating

- We will strengthen university-industry collaboration functions centered on Tsukuba Science City.
- We will promote active industry-university collaboration activities.

Main Measures

1 Promoting research that can be returned to society through ALL TSUKUBA

Under the Headquarters for International Industry-University Collaboration, we will introduce a new research and development center system based on external funding. Through this system, we will aggressively promote research that provides returns to society through joint research with companies, the development of research organizations through joint investment, and the joint use and sharing of research facilities and equipment on and off campus.

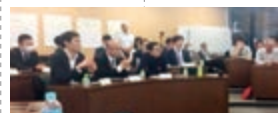

We will collaborate with universities, government institutes, research and development corporations, corporate research laboratories and other research institutes in Tsukuba Science City. Through such collaboration, we will promote research that provides returns to society in areas such as the development of new devices, equipment, functional plants, and research in new medicines such as cybernetics by constructing an innovation research platform beyond the barriers of government agencies and corporate organizations to bring together human resources under a cooperative structure that will further develop the TIA-nano system.

2 Strengthening industry-university collaboration functions centered on Tsukuba Science City

We will build an innovation research platform based on a unified ecosystem with universities, government institutes, research and development corporations, corporate research laboratories and other research institutes in Tsukuba Science City, and we will bridge fundamental research and development research and promote cooperation in research activities between universities and research institutes to establish a platform of universities and research institutes that will promote the integration of graduate school education and research activities. Moreover, we will establish a structure for uniformly promoting clinical research through medicine-engineering collaboration between the University Hospital and relevant medical institutions and companies in Tsukuba Science City.

3 Promoting vibrant industry-university collaboration activities

We will clearly establish design thinking and entrepreneur education in undergraduate and graduate education and the training of young men and women in Tsukuba Science City.

Entrepreneurship Education	Course (Unit System)	EDGE-NEXT TCC Basic (Undergraduate Students) TCC Advanced (Undergraduate/Graduate Students)	 TCC: Tsukuba Creative Camp
	Practical Learning	EDGE-NEXT Basic & Developmental	 EDGE-NEXT: Entrepreneurship training program of the Ministry of Education, Culture, Sports, Science and Technology
	Internationalization Program	UCSD Training/National Taiwan University Training	

Tsukuba Innovation Arena (TIA): Open Innovation Center

TIA is an open innovation center operated jointly by the National Institute of Advanced Industrial Science and Technology (AIST), National Institute for Materials Science (NIMS), University of Tsukuba, High Energy Accelerator Research Organization (KEK) and the University of Tokyo. Aiming to accelerate innovation creation in Japan, the five institutions with high research potential bring together their comprehensive research capabilities in areas such as human resources, facilities and intellectual property to cooperate in providing integrated support from the creation of knowledge to its commercialization.

Based in Tsukuba, the Tsukuba Innovation Arena Nanotechnology Center (TIA-nano) promoted open innovation in the field of nanotechnology from 2009 to 2015. With the University of Tokyo's participation as a new member in 2016, the research area, underpinned by nanotechnology, expanded to include new fields such as biotechnology, computational science and IoT, marking the start of the new TIA.



Specific Initiatives

Promotion of development research centers

The university establishes development research centers as a system for creating venues for applying the university's interdisciplinary research capabilities to create next-generation industries. These centers are intended to actively engage in research and development with companies in academic fields where there is a strong social demand and establish collaborative research frameworks.

With a focus on these development research centers, we will promote industry-university collaboration of researchers in various fields and actively contribute to achieving Society 5.0 and the SDGs.

The Algae Biomass and Energy System R&D Center (ABES)

The world's first algae biomass comprehensive research and development center



The Research and Development Center for Precision Medicine (PMC)

Aiming to become Japan's first 1,000 dollar genome analysis center



R&D Center for Frontiers of MIRAI in Policy and Technology

Advanced research center for mobility infrastructure that realizes Society 5.0



R&D Center for Sport Innovation

First social experiment center of a national university athletic department in Japan



R&D Center for Health Services

Japan's first center specializing in the study of services that bring health and happiness



R&D Center for Tailor-Made QOL

Provision of programs for improving QOL on an individual basis through food, exercise and sleep



R&D Center for Working Persons' Psychological Support

Development research center for research on providing psychological support for working persons and building social contribution infrastructure

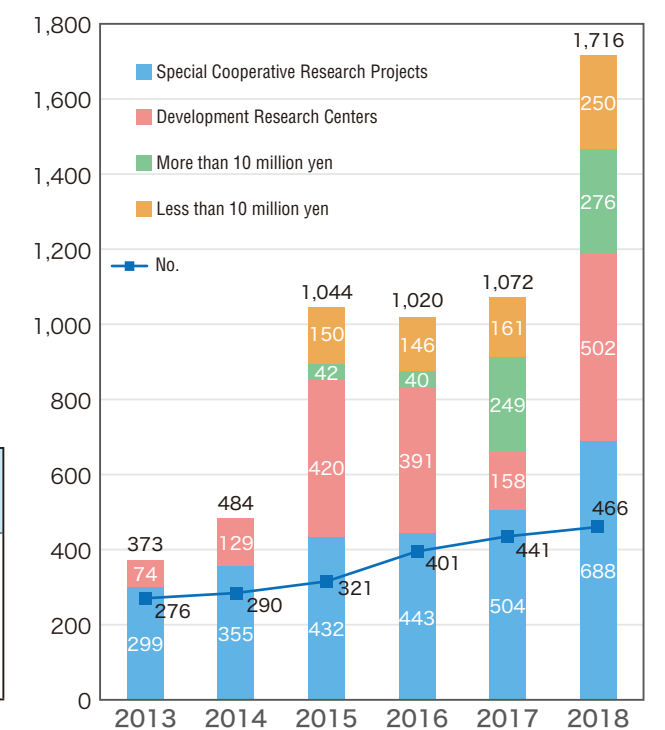


Progress of KPIs of the Third Mid-Term Goals and Mid-Term Plan

Changes in Cooperative Research with the Private Sector

In 2014, we established the Headquarters for International Industry-University Collaboration and have been pursuing large-scale cooperative research with the private-sector. The value of cooperative research with the private sector in AY2018 exceeded 1.7 billion yen. This is 3.5-fold the amount of AY2014 prior to the establishment of the headquarters.

KPI	Target	AY2016 Achievement	AY2017 Achievement	AY2018 Achievement
No. of cooperative research projects	Versus AY2012 70% increase (Approx. 528 projects)	Approx. 52% increase (472 projects)	Approx. 66% increase (516 projects)	Approx. 74% increase (542 projects)





Goals & Main Measures

**1 We will strengthen our global competitiveness as befits a world-class university and deliver education with international interchangeability as well as research of the world's highest level**

To achieve the goals of our Top Global University project "Creating a Transborder University for a Brighter Future" supported by MEXT, we will cooperate with our partner universities worldwide and promote international collaboration in education and research through the Campus-in-Campus initiative, which facilitates sharing education and research beyond institutional and national boundaries.

**2 We will lead the overall globalization of Tsukuba Science City**

We will cooperate with various institutions within Tsukuba Science City to contribute to the delivery of education and health services to its residents including the children of researchers from abroad. We will strengthen the global presence of the university and entire Tsukuba Science City through the active dissemination of education and research outcomes by hosting international conferences including holding the Tsukuba Global Science Week (TGSW) in which research institutes within the Tsukuba Science City as well as educational and research organizations of the university participate.

Specific Initiatives

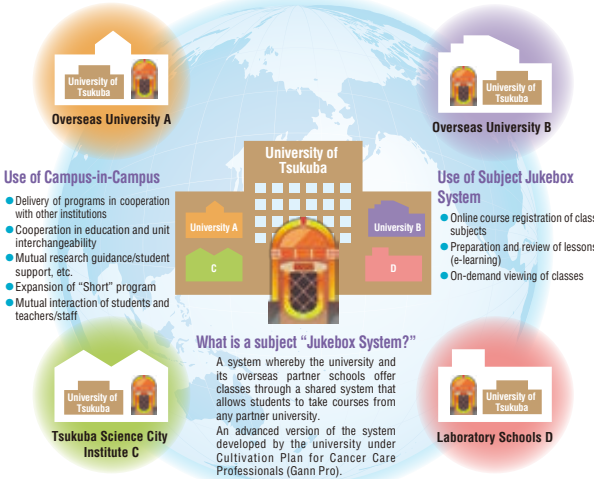
**1 Campus-in-Campus (CiC) Initiative**

This is an initiative for realizing transborder education and research exchanges beyond national and institutional boundaries by sharing campus facilities with international partner universities that have signed Campus-in-Campus (CiC) agreements with the University of Tsukuba. Specifically, by creating the University of Tsukuba campuses in overseas partner universities and creating overseas partner campuses at the University of Tsukuba through the following initiatives, we aim to make universities around the world home campuses where our students and faculty can freely engage in academic and other activities.

Promotion of Transborder Education and Research

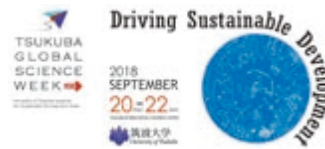
- (1) Create a "Course Jukebox System" → Promote collaborative education with overseas partners
- (2) Mutually share education and research units with overseas partner universities → achieve world top-level education and research
- (3) Utilize Tsukuba Science City institutions and affiliated schools → Establish venues for transborder education and research
- (4) Make faculty and staff available beyond university boundaries → Promote international collaboration and cultivate international awareness

Training Human Resources for Global Innovation



**2 Tsukuba Global Science Week (TGSW)**

The Tsukuba Global Science Week brings wisdom from around the world to Tsukuba Science City where participants engage in discussion beyond national borders and fields of research in efforts to build an international collaboration network, and at the same time to create "knowledge" backed by a high level of research. The TGSW, which aims to disseminate information on solutions to "global issues" from Tsukuba to the world, has been held since AY2010.



**3 Tsukuba Conference**

Based on the achievements of the Tsukuba Global Science Week, we plan to hold the Tsukuba Conference for the first time in 2019 as a forum for discussion that will also include young entrepreneurs. The theme will be the "society we should work towards as we set our sights on Society 5.0 and the SDGs, and the issues we must address to achieve these."

As a young version of a Davos Meeting in Tsukuba, we hope the conference will communicate the energy and passion of the younger generation.

Progress of KPIs of the Third Mid-Term Goals and Mid-Term Plan

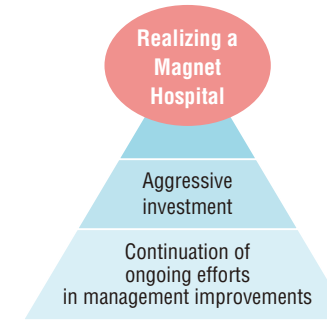
KPI	Target	AY2016 Achievement	AY2017 Achievement	AY2018 Achievement
CiC partner universities	10	5	7	8
TGSW overseas participating institutions in AY2021	30	46	88	84
TGSW overseas participants in AY2021	300	300	262	298

Goals & Main Measures

The University Hospital has education and research functions as an affiliated hospital of a comprehensive research university, and medical treatment functions as the only special function hospital in the prefecture.

In education and research functions, we will promote initiatives that leverage the strengths and uniqueness of the university in areas such as enhancing and strengthening regional medical education centers established throughout the prefecture, strengthening the framework for promoting clinical research to accelerate the creation of innovative medicines, introducing the use of robots in medical treatment to realize cutting-edge R&D and medicine and social applications, and establishing innovative cancer treatment regimes using boron neutron capture therapy (BNCT). In medical care, we are promoting efforts to contribute to regional medicine not only in Ibaraki Prefecture but also in other prefectures as well by strengthening services such as the provision of telemedicine and advanced medical care (lifesaving and emergency medicine, etc.) and strengthening new outpatient functions.

- From fiscal 2018, the hospital has been shifting from the stage of ensuring sound management is on track to aiming for "true enhancement in functions!"
- With our sights set on the future, we aim to make investments necessary for the "real" functional strengthening of the hospital, putting in place an environment that will be satisfying not only for patients but also for staff as we realize a "magnet hospital."\*



Strengthening Functions

- Improving and enhancing the education and training environment**
  - Support the training of staff who provide advanced acute care
  - Improve and strengthen regional medical care education center functions
- Improving the research environment**
  - Strengthen the framework for promoting clinical research
  - Promote world-leading medical care R&D and its social implementation
- Improving the medical care environment**
  - Strengthen specialist outpatient functions (including chemotherapy)
  - Establish a framework for providing telemedicine, advanced medical care

\*An attractive hospital with comprehensive medical treatment systems, facilities and equipment for providing advanced acute care, with high-level human resource development capabilities, which appeals to doctors, nurses, etc. and is trusted by patients

Specific Initiatives

**1 Physician-led clinical trials through the University of Tsukuba Clinical Research & Development Organization (T-CReDO)**

T-CReDO supports the development of research results (seeds) in medical technology and their practical application in clinical development. Likewise, it supports the implementation of clinical trials to obtain useful clinical knowledge. T-CReDO began new physician-initiated trials for romiplostim umbilical cord blood transplantation in August 2018 and atezolizumab for bladder cancer preservation therapy in November 2018. Since 2016, T-CReDO has launched four projects, and plans to launch another one in the next academic year.

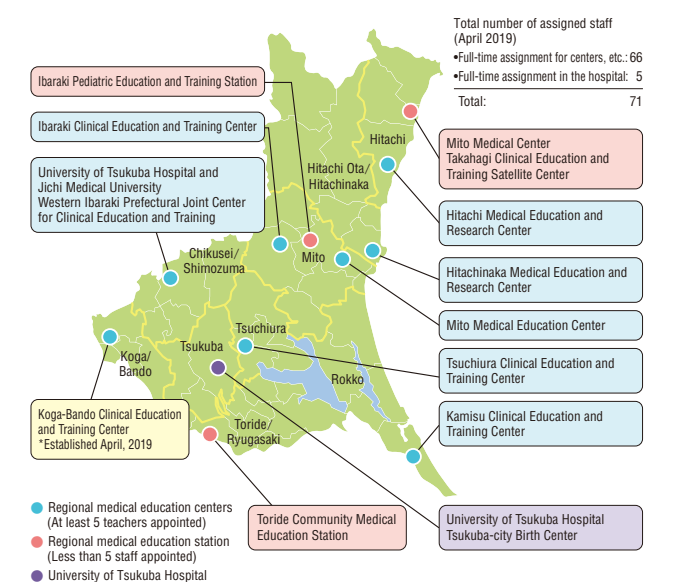


**2 State-of-the-art medical care at the Center for Innovative Medicine and Engineering (CIME)**

CIME promotes the clinical development of medical devices and pharmaceuticals through interdisciplinary research including medical engineering collaboration, and conducts physician-initiated clinical trials and other clinical research aimed at new treatments using the robot suit HAL. In driving simulator research, we are also moving ahead with social implementation of our data analysis results, which are at present reflected in the Autonomous Driving Program Guidelines of the Ministry of Land, Infrastructure, Transport and Tourism.



Locations of Regional Medical Education Centers, etc.





Goals & Main Measures

Applying the results of leading education centers, teacher education centers and international education centers, we will establish a "consortium" with universities and affiliated schools throughout Japan and develop and propose curricula for developing global knowledge.

We perceive the 11 affiliated schools as a cluster of schools that will lead education nationally. With this understanding, we share the accumulated knowledge of the affiliated schools including the high level of teaching expertise of the teachers in areas such

as guidance in curriculum, school events, and special support education at the affiliated cluster through exchanges at the cluster of schools.

Moreover, we will leverage our strengths that can be deepened and we will strengthen our framework of collaboration with universities nationwide to develop programs aimed at a "Tsukuba-type inclusive education system." Furthermore, we will return the results of those activities nationwide through open research seminars and publishing activities.

Specific Initiatives

Overview of the three centers

Leading Education Centers in Effective Curriculum Development Aimed at Improving Basic Academic Ability Research and Practice for Leading Education in Japan

With affiliated elementary schools, junior high schools, high schools, and special schools catering for students with all types of disabilities, the University of Tsukuba is a unique university in the world. The university's affiliated schools also have a long history as experimental schools representative of schools in Japan, and we actively report on research and practices in the affiliated schools to lead education in Japan.



"Buds of Science" Prize Commendation Ceremony and Presentation

(Main Initiatives)

- Affiliated school research presentations
- 13th "Buds of Science" Prize

Advanced Teacher Education Centers for Improving Teacher Instruction Leadership in Teacher Training and Teacher Education

The university's roots go back to Japan's first Normal School. Since then, the university has led education in Japan. The affiliated schools have also played a vital role in cooperating with university research and in practical training for teachers and carers. Leveraging the characteristics of their respective school types, the affiliated schools hold open classroom visits and workshops for practicing teachers, accept short-term and long-term teacher trainees, and use their classrooms as venues for conducting courses for teachers renewing their teaching certificates (Option D).



In-service teacher training

(Main Initiatives)

- Curriculum development for nurturing uniform global skills in elementary, junior high and high school
- In-service teacher training (teacher training workshops for newly appointed teachers), etc.

International Education Centers Cultivating Skills in Internationalism Developing the Ability to Respond to Internationalism

The university's affiliated schools promote international exchange activities for young students and teachers based on two common concepts:

- (1) In parallel with their development as individuals, infants, children, and students at the schools develop an attitude of understanding and appreciation of their own culture and the cultures of other countries and an attitude of actively communicating with people of other countries.
- (2) Respecting the culture of their own country and the cultures of other countries, teachers make efforts to promote internationalism at their schools as a whole and consider what their schools can do for Japan and the world.



SGH international fieldwork of the affiliated Senior High School at Sakado (Indonesia)

(Main Initiatives)

- International Baccalaureate (IB)
- Promotion of Olympic and Paralympic Education

Goals & Main Measures

In an environment where a reduction in the scale of higher education is expected due to the declining birthrate in Japan, it is difficult at present to foresee stable operating expense grant arrangements for national universities as Japan faces stringent fiscal conditions due to surging social security expenses and other costs. Therefore, as a university, we must diversify our financial resources and reduce dependence on operating expense grants. We must shift from university operations that rely on grants from the government to university management that is supported by diverse financial resources.

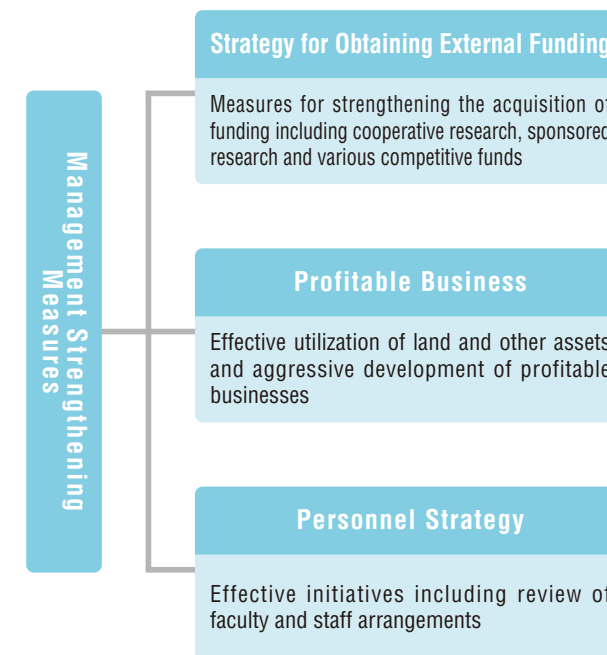
In addition to formulating "management strengthening measures" and making efforts to reform the university's revenue and expenditure structure, we have established the University Management Reform Office as an advisory body under the direct control of the President. This office includes external corporate managers and other experts, and we are examining concrete plans for the future.

To strengthen governance, we have also established a basic policy on information security and are making efforts to put in place a framework.

Specific Initiatives

1 Management Strengthening Measures

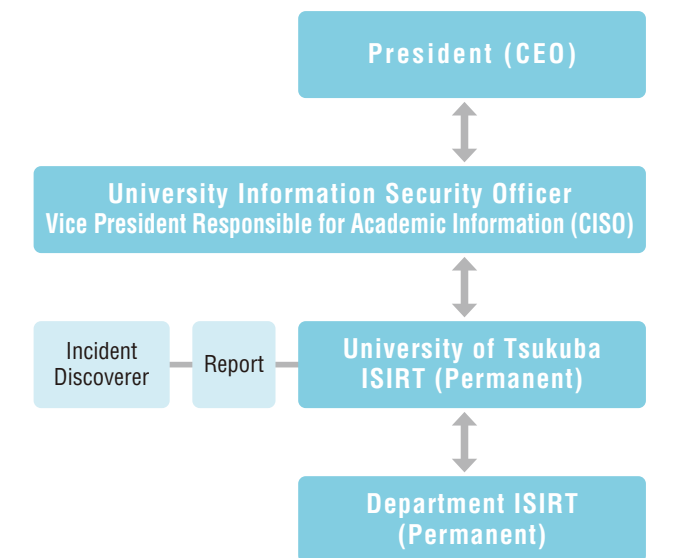
To maintain a stable business foundation at the university, we must revamp the income and expenditure structure. Therefore, in the Third Mid-term Goals Period we formulated "management strengthening measures" based on a strategy for obtaining external funding, the development of profitable businesses and a personnel strategy, and we are currently working towards their realization.



2 Information Governance Framework

Under the basic policy on information security, we are putting in place rules and systems necessary for implementing appropriate information security measures to maintain information security standards that form the foundation of open, comprehensive universities both in Japan and internationally and to ensure the ongoing stable implementation of education, research and administrative business.

Information Security Organization and Framework



\*ISIRT (Information Security Incident Response Team)

Progress of KPIs of the Third Mid-Term Goals and Mid-Term Plan

KPI	Target	AY2016 Achievement	AY2017 Achievement	AY2018 Achievement
Young teachers	25%	21.4%	20.6%	20.1%
Female teachers	20%	18.2%	18.2%	18.5%
Foreign teachers	10%	7.0%	6.9%	6.7%
Teachers on annual salary	30%	28%	30.3%	32.3%
Teachers on mixed salary arrangements	Versus AY2015 (18)	18	26	47





**Results of  
Main Activities  
in AY2018**



Cygnus, the New Supercomputer of the Center for Computational Sciences, Goes on Line

We completed the development of Cygnus, a multi-complex accelerated supercomputer with combined GPU and FPGA systems. This is the first supercomputer in Japan provided for joint use nationwide (commenced operation in April 2019).

We aim to realize high-performance computing with high

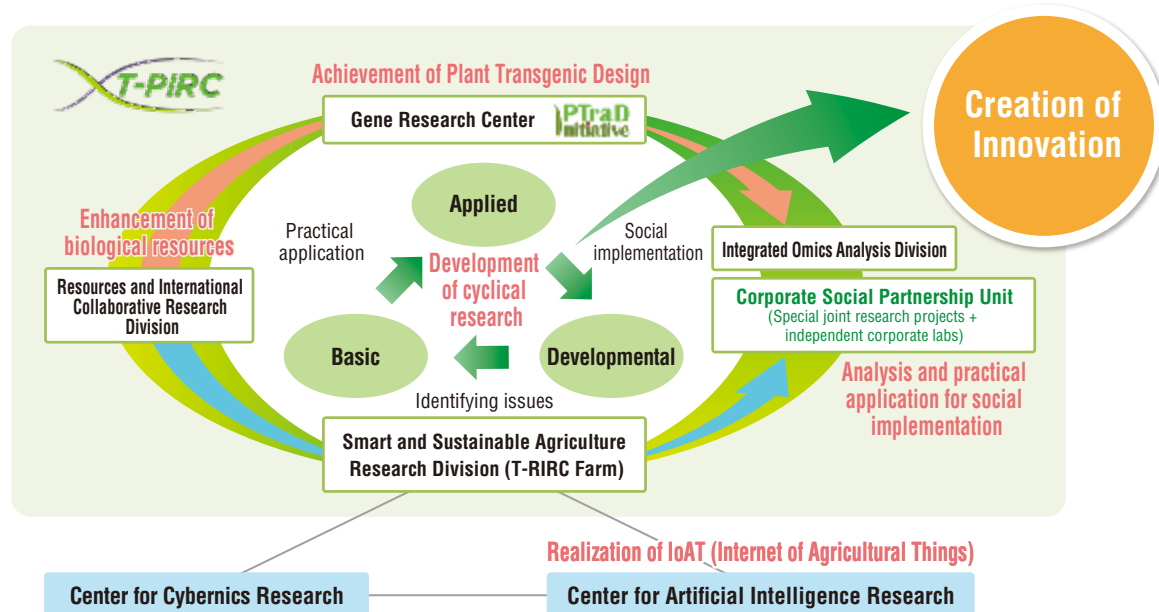
efficiency and low power consumption previously not possible with conventional single computer accelerators.

\* GPU (graphics processing unit)  
FPGA (field programmable gate array)



Development of Health-promoting Tomato Using Genome Editing Technology

Using genome editing technology, we have developed a tomato with high "GABA" amino acid content, a functional ingredient. GABA has the effect of suppressing an increase in blood pressure and reducing stress, and its content in genome-edited tomatoes is up to approximately 15-fold that of ordinary tomatoes. Based on our research results, we established Sanatech Seed Co.,Ltd.) as a new startup. We aim to commence sales of the tomatoes as Japan's first genome-edited food product by the end of 2019.



Contributing to International Research Projects

In May 2018, the University of Tsukuba became the first Japanese research institute to enter into a cooperative agreement with the Tara Expeditions Foundation of the Republic of France as a full-fledged partner to take part in the foundation's Tara Ocean Exploration Project Survey which will travel around the coastal waters of Japan to conduct research mainly on coral. This was based on the track record of the university's Shimoda Marine Research Center which has supported various marine activities. Prior to the conclusion of the agreement, the university held an international symposium to address the current status and crisis of coral reefs. This symposium contributed to the enhancement of the university's profile in the field of marine biology and disseminated information both in Japan and abroad.



University of Tsukuba and Rakuten Sign "Future Store Design" Joint Research Agreement

The university signed a special joint research project agreement with Rakuten Inc. and launched a special joint research project that will promote research and technology development and demonstration test, heading towards the realization of a future store design and new shopping experience using AI technology. In cooperation with the Center for Artificial Intelligence (C-AIR), the university will consider viewpoints from a wide range of disciplines and engage in a composite study utilizing the knowledge and technologies in the internet business that companies possess. (Photo of a spatial display system that changes with the heartbeat of humans, one of the research results.)



No. of Grants-in-Aid for Scientific Research Projects Adopted Annually (8th in Japan)

University	No. of Projects Adopted (New + Ongoing)	No. of New Projects
1. Tokyo University	3,825	1,483
2. Kyoto University	2,900	1,055
3. Osaka University	2,472	937
4. Tohoku University	2,388	848
5. Kyushu University	1,882	674
6. Nagoya University	1,741	606
7. Hokkaido University	1,610	569
8. University of Tsukuba	1,226	420
9. Kobe University	1,143	399
10. Hiroshima University	1,094	354

\*"AY2018 Distribution of Grants-in-Aid for Scientific Research" Ministry of Education, Culture, Sports, Science and Technology (November 2018)

Note 1. Only major events are included in the above data

Note 2. Organized by the research institution to which the research representative belongs

No. of Highly Cited Academic Papers of the University (8th in Japan)

One indicator that reflects a university's achievements and actual results in research is the number of citations of academic papers. According to Clarivate Analytics "Essential Science Indicators" database, the University of Tsukuba ranked 8th in Japan for the number of highly cited papers for the 11-year period from January 1, 2008 to December 31, 2018.

Highly Cited Papers are papers that perform in the top 1% based on the number of citations received when compared to other papers published in the same field in the same year.

University	No. of highly cited papers	Ratio (%)
1. Tokyo University	1,474	1.7%
2. Kyoto University	918	1.4%
3. Osaka University	584	1.2%
4. Tohoku University	528	1.1%
5. Nagoya University	464	1.3%
6. Kyushu University	362	1.0%
7. Tokyo Institute of Technology	334	1.3%
8. University of Tsukuba	294	1.3%
9. Hokkaido University	268	0.8%
10. Okayama University	239	1.5%



Decision to Shift to a University-wide Degree System

To enhance the individuality and abilities of students, the university made a decision to make a general transition from the current education system based on graduate schools and programs to a new education system centered on degree programs to enable faculty from a wide range of disciplines to collaborate and provide education beyond the traditional organizational framework (scheduled for 2020).

Therefore, we have decided to clearly distinguish the existing graduate schools from faculties which are the organizations responsible for research, and to reorganize the current eight graduate schools and 85 graduate programs into three graduate schools and six research schools (and specialist graduate school programs, joint programs and international partnership programs) which are the organizations responsible for education. We have been reviewing the specific educational content and educational framework, and have completed organizing the curriculum for each degree program in the new organization. The student intake under the new organization has been planned based on the capacity of the current programs, bearing in mind the deployment of future human resources in each field. To take the lead in realizing a "flexible education and research organization" unfettered by conventional ideas and a "new university system" required by the next generation, we made a decision at the university statutory meeting for the application for establishment in AY2019 regarding a reform plan for these to pursue "constant reform".



1 New education system

We will eliminate traditional organizational barriers and shift to a flexible education system where faculty responsible for degree programs will collaborate across a wide range of fields

– Building an educational system that meets the expectations of society and students –

2 Versatility and expertise

In addition to advanced specialties, our aim is for students to acquire general-purpose skills to enable them to perform in various social situations

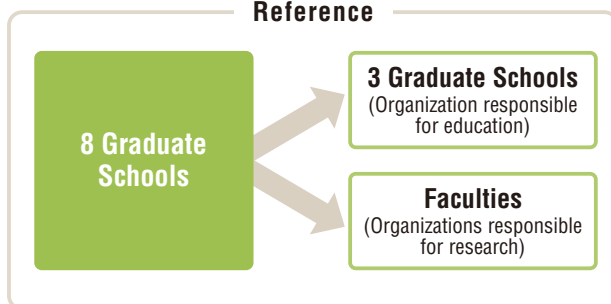
– Cultivating the ability to support lifelong active participation in a rapidly changing society –

3 Research skills and "workplace skills"

We will promote the development of human resources who have both research skills and workplace skills and who can perform adeptly in practical situations to solve specific issues in society

– Producing men and women in various fields of industry, government, and academia related to these issues –

Reference



Educational Organizations

Graduate School of Business Sciences, Humanities and Social Sciences	Degree Programs in Humanities and Social Science
	Degree Programs in Business Sciences
Graduate School of Science and Technology	Degree Programs in Pure and Applied Sciences
	Degree Programs in Systems and Information Engineering
	Degree Programs in Life and Earth Sciences
Graduate School of Comprehensive Human Sciences	Degree Programs in Comprehensive Human Sciences

Faculty Organizations

Faculty of Humanities and Social Sciences
Faculty of Business Sciences
Faculty of Pure and Applied Sciences
Faculty of Engineering, Information and Systems
Faculty of Life and Environmental Sciences
Faculty of Human Sciences
Faculty of Health and Sport Sciences
Faculty of Art and Design
Faculty of Medicine
Graduate School of Library, Information and Media Science
Faculty of Transdisciplinary Research

Teachers from a wide range of disciplines work together to provide education

Steady Implementation of a New Collaborative Graduate School System

The Life Innovation Degree Program (a divisional doctoral program), which was launched in October 2015 as a pioneering degree program under the "partner graduate school system" implemented in collaboration with researchers of R&D corporations of Tsukuba Science City and R&D divisions of companies, produced its first graduates as seven students completed the final stage of

their doctoral work in AY2018. The attractive educational content and guidance system of this program appeals to a wide range of talented students from all over the world. As of October 2018, 43 students from 13 countries were enrolled in the program (15 Japanese students and 28 international students; with 15 students in the master's program and 28 students in the doctoral program).

Life Innovation Degree Program

A leading world-class faculty made up of members of the Life Science Promotion Association of Tsukuba (National Research and Development Agency, research and development divisions of private companies) and researchers from the University of Tsukuba

Specialist Education Field

Four fields: disease mechanisms, drug discovery, food innovation, and environmental management

Plans to add 2 more fields in 2020: biological biological information and biomolecular materials

Results to Date: Commenced Accepting Students in October 2015

- February 2012: Inauguration of the Life Science Promotion Association of Tsukuba
- Established a liaison meeting in the council with the University of Tsukuba
- Established a preparatory office for establishing a Life Innovation Degree Program
- Signed an agreement concerning the participation of teachers from University of Oxford
- April 2015: Established a degree program, conducted PR, held entrance examination, etc.
- October 2015: Started to accept students
- Signed an agreement with the University of Oxford for the establishment of a liaison office

Utilizing the Wisdom of Tsukuba Science City

Education Results Based on Relentless Reforms (1st Place)

The University of Tsukuba received an overall ranking of 1 in the "University Image Survey from the Viewpoint of Corporate Personnel Managers" published jointly by the Nikkei Keizai Shimbun and Nikkei Human Resources. This survey reviews universities from the viewpoint of personnel managers of listed companies regarding their image of universities whose students secure employment at their companies. The University of Tsukuba received a high rating from personnel managers at companies for establishing a unique learning environment whereby the university encourages education and research exchanges with partner schools overseas under the CiC initiative, implements interdisciplinary course curricula, responds appropriately to social needs, and widely publicizes in society its commitment to education and to guarantee the quality of its degrees and to improve sustainability under the "Tsukuba Standard." According to these human resources managers, these factors have resulted in an improvement in the quality of students.

University	Overall score	University	Overall score
1. University of Tsukuba	32.36	6. Yokohama National University	31.56
2. Kyoto University	32.26	7. Kyushu University	31.48
3. Tokyo University of Agriculture	32.07	8. Waseda University	31.37
4. Osaka University	31.99	9. Keio University	31.26
5. Tokyo University of Foreign Studies	31.80	10. Nagoya University	31.24

\*From "Universities with Value 2019" published by Nikkei Human Resources

Building an Education system that Cultivates Comprehensive Wisdom

To promote educational reforms of the university by introducing specialty finding (SF) education and shifting to a degree program system at graduate schools and at the same time recognizing the need to review liberal arts education, we have decided to create a framework for comprehensive knowledge education across the board from bachelor courses to graduate courses as educational reforms in undergraduate courses.

In AY2018, we settled on the definition for "comprehensive knowledge education\*" and organized education programs on the basis of this principle.

\*A system of education for developing advanced specialist knowledge and a comprehensive knowledge base through the acquisition of diverse, interdisciplinary knowledge utilizing that knowledge, as well as education for fostering the development of advanced intellectual human resources with well-balanced, well-developed knowledge including ethics, humanity, logic, internationalism, communication skills, a rich mental and physical foundation, and management, planning and coordination skills

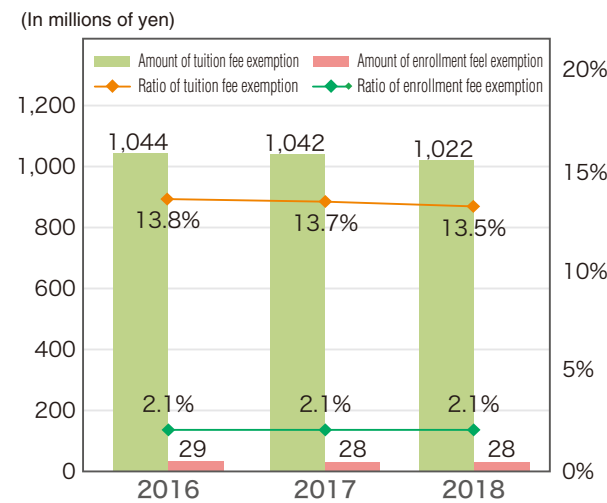




Enhancement of the Tuition Fee Exemption

The university exempts from paying the enrollment fee and tuition fees in whole or in part those students who have difficulty paying due to financial reasons as well as students who are recognized as having outstanding grades, and other students who are deemed to have unavoidable circumstances.

In AY2018, 114 students were granted exemptions from enrollment fees totaling 28 million yen and 5,422 students were granted exemptions from tuition fees totaling 1,022 million yen.

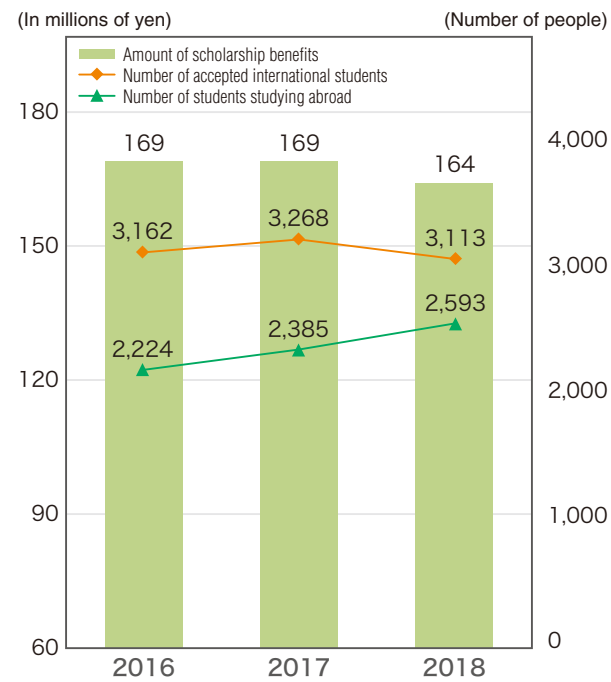


Receiving International Students and Improving Support for Overseas Study

The Tsukuba University Student Scholarship "Tsukuba Scholarship" is a program that provides financial support for international students, support for students studying abroad, and emergency support for educational expenses through various initiatives for internationalization including the Project for Establishing University Network for Internationalization. This is the university's own scholarship program for supporting students and is funded by non-subsidy revenue of the university. With the increase in the number of international students received by the university and the number of students studying abroad, the program provided 69 million yen in support of 126 students in AY2018. Since its commencement in 2009, the program has provided a total of 637 million yen in support to 1,672 students.

The "Habatake! Tsukudai-sei Study Exchange Support Program" is another scholarship program sponsored by the university for assisting students studying abroad. In AY2017, the number of eligible students was seven but that number rose to 21 in fiscal 2018, a three-fold increase from the previous academic year, due to a concentration of student exchange support scholarships within the university and active promotion of the program at study abroad fairs and other events. Since AY2018, we have also been organizing and conducting a four-week short-term overseas language training program was planned and implemented as a new short-term overseas language training program at the Cebu Pelis Institute (CPI) in Cebu, Philippines in September during the summer semester break, and 11 students participated in the program. In March 2019, we implemented the same program during the spring semester break, and 10 students participated in the program. The number of applicants significantly exceeded the number of participants for both programs.

In AY2018, the university provided a total of 164 million yen in financial support including the Tsukuba Scholarship to assist students to study abroad and participate in overseas study programs.



Establishment of an Athletic Department

Before the nationwide debate on the promotion of university sports began in earnest, we expressed the need both within and outside the university for an athletic department to systematically manage competitive sports at universities and we took the lead nationally in establishing an Athletics Department.

As a result, we can expect this department to contribute to making the accounting of sports clubs transparent, clarifying the locus of responsibility in sports clubs, improving student athletes' academic work, ensuring safety and security, enhancing competitiveness, increasing the value of universities through the dissemination of information on competitive sports at universities, and revitalizing the

local economy through the commercialization of university sports.

In AY2018, the men's and women's volleyball clubs, the men's and women's handball clubs and the hardball baseball team joined the Athletic Department, and the university employed a dedicated athletic trainer to manage the health of the student athletes in cooperation with the University Hospital. This resulted in an improvement of competition scores while giving high priority to safety and security with the decrease in the number of athletes who were hurt or in bad shape including significant reduction in heat stroke in the hardball baseball club, and winning the Kanto League without any withdrawals due to injuries by the men's handball club.



Improvements in the University Library

The University of Tsukuba Library, consisting of the Central Library and four specialized libraries (Physical Education/Arts, Medicine, Library Information Science, Tokyo Campus), operates under a unified management system. In addition to housing three million books in print including various collections and valuable books, the library provides electronic journals and databases through its website. Other services are also available upon request such as loan renewals, reservations, and copies of documents from other universities.

In AY2018, with a subsidy from the Idemitsu Foundation for Culture and Social Welfare, the university completed restoration of a screen painting of Kano Tanyu called "Yagai sougaku, Saruhiki-zu," which is a treasure of university. In commemoration of the completion of the restoration, the library held a special exhibition. This is one of a number of activities the library organizes as a center for disseminating academic information to enhance its role in supporting education and research activities for students and the public.



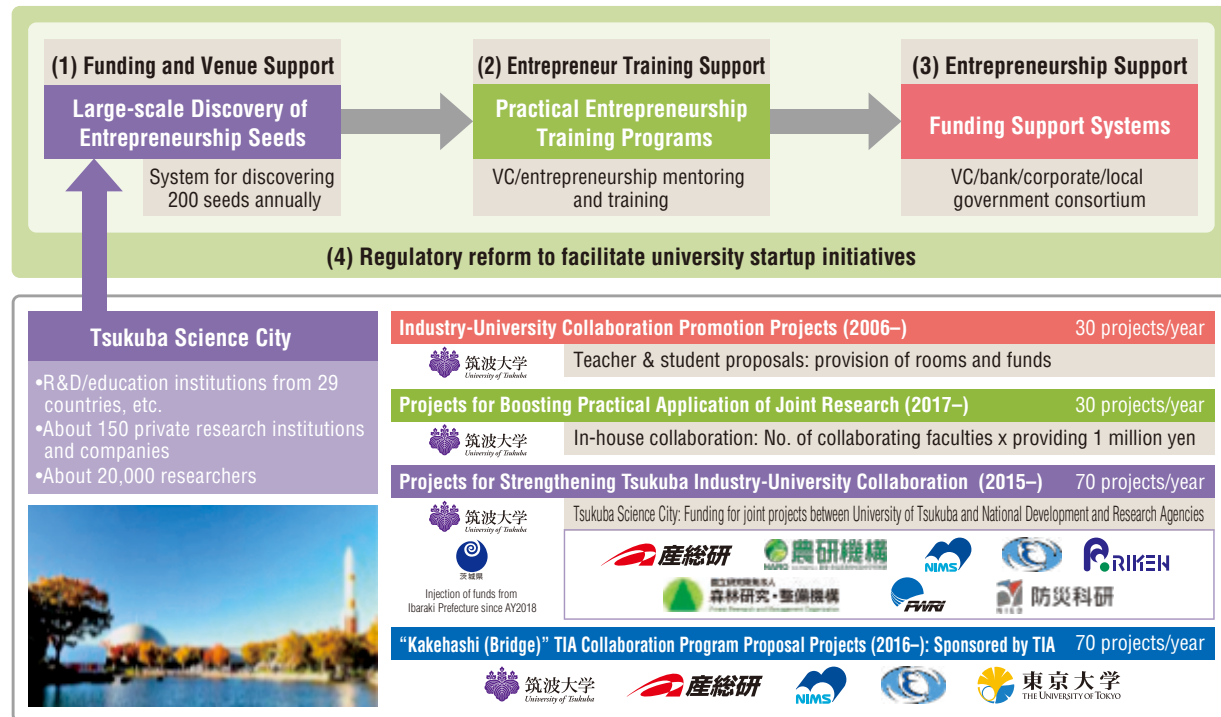


## Support in the Creation of Ventures

Boasting approximately 20,000 researchers, Tsukuba Science City is a treasure trove of large-scale tech seeds. As a central hub for education and research, the university promotes the invigoration of "All Tsukuba" potential through (1) funding and venue support, (2) entrepreneur development support, and (3) entrepreneurship

support.

With regard to providing support in financing and venues in particular, we have been inviting applications from the public for four projects annually and providing support for the discovery of 200 tech seeds in the Tsukuba area.



## Dissemination of Information Concerning Ventures Launched at the University

In December 2018, we held the 1st University of Tsukuba Ventures Symposium at the Tokyo campus, with 189 participants in attendance. In a keynote speech entitled "Industry-University Collaborations in a New Era," Associate Professor Yoichi Ochiai, CEO of Pixie Dust Technologies Inc., a startup company launched at the University of Tsukuba, introduced the innovative special collaborative research project system of the university. His presentation was followed by presentations of representatives of 14 ventures of the University of Tsukuba. This part of the program was divided into three parts. The representatives gave an overview of how their ventures developed into startups, from their origin to the development of technologies, the procurement of funding, and the establishment of new business models. The symposium provided an opportunity to promote the activities of university ventures and the Tsukuba area as a leading hotbed for startups in Japan.

The total number of startups launched at the university is 144, and funding in AY2018, which increased significantly, reached five billion yen.



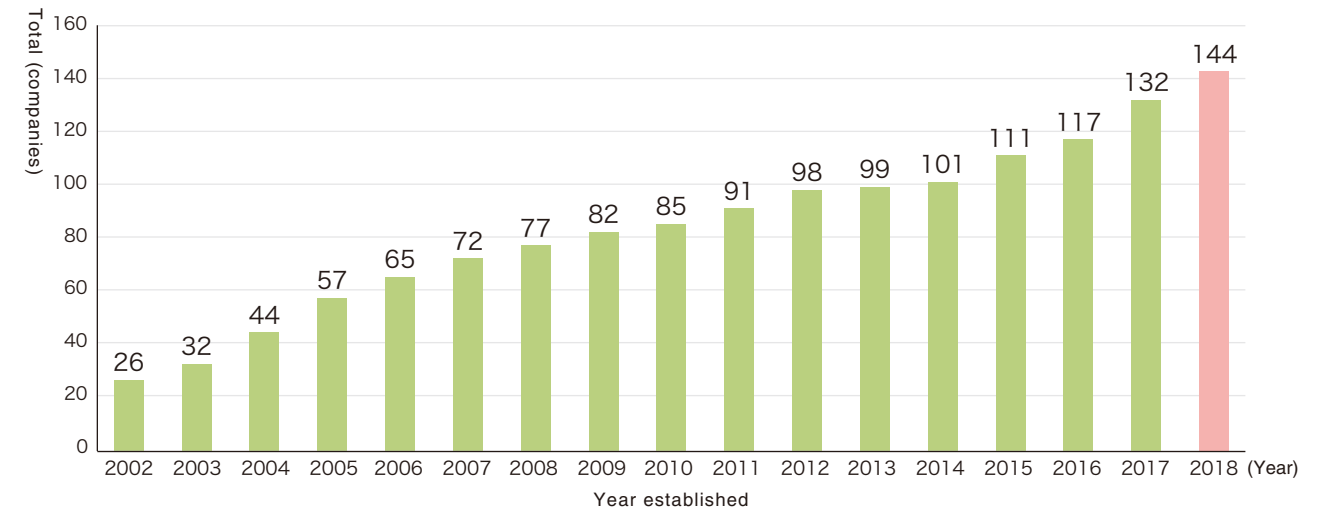
## Providing Entrepreneurship Education

The Next Generation Entrepreneur Development Project (EDGE-NEXT) has been in progress since AY2017 as a subsidy project of the Ministry of Education, Culture, Sports, Science and Technology (MEXT). In AY2018, in addition to the development program offered the previous year, MEXT also offered a basic program. Ten teams with a total of 39 members took part in the basic program and eight teams with a total of 22 team members took part in the development program. In entrepreneurship education courses, the university has been offering "Tsukuba Creative Camp (TCC) Basic" (mainly for undergraduate students) and "TCC Advanced" (mainly for graduate students) as class subjects since AY2016, and will continue to do so. A total of 50 students in eight teams have attended TCC Basic, and 26 students in four teams have attended TCC Advanced. These courses have resulted in specific outcomes. One of the basic teams has progressed to the development program of EDGE-NEXT, one advanced team has acquired customers, and two teams have continued their activities even after completion of the advanced program.

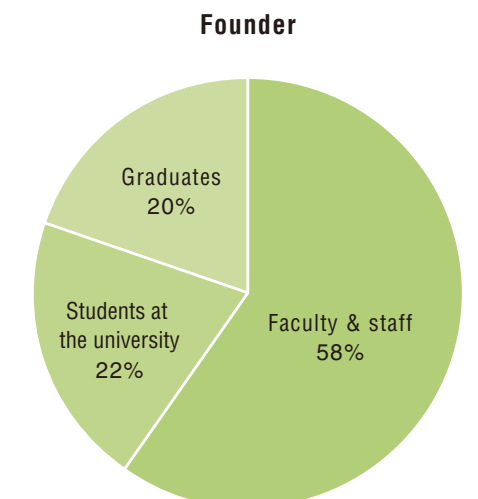
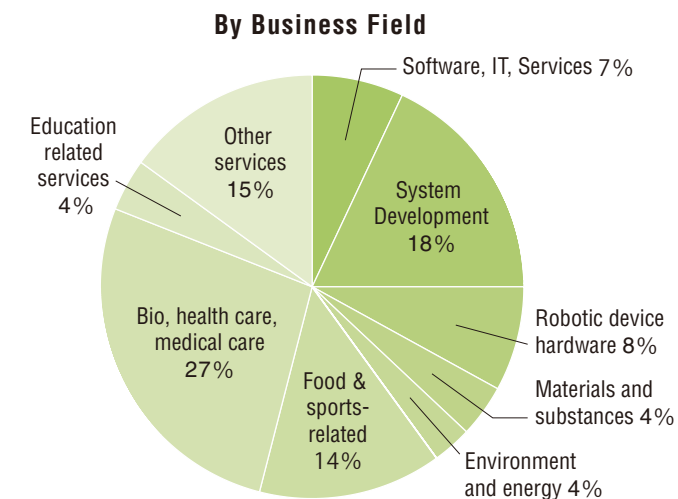


## No. of Startups Launched at the University

Approximately 10 startups have been launched annually at the University of Tsukuba since 2015, and as of the end of AY2018, 144 startups have been established in total.

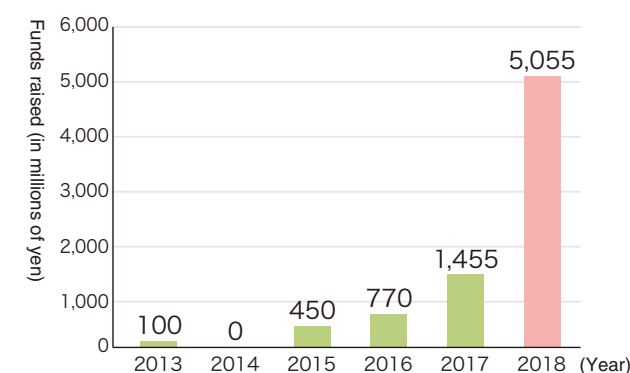


## Breakdown of Ventures Launched at the University



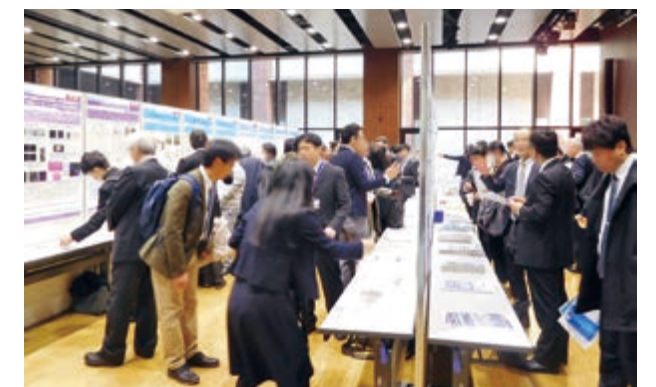
## Annual Change in Funding for Ventures Launched at the University

Fund raising for startups launched at the University of Tsukuba has grown rapidly, reaching 5.0 billion yen as of the end of 2018.



## Holding Industry-University Collaboration Symposiums

We presented lectures on subjects such as industry-university initiatives and ventures launched by the university, aimed at new partnerships with industry as a comprehensive university.



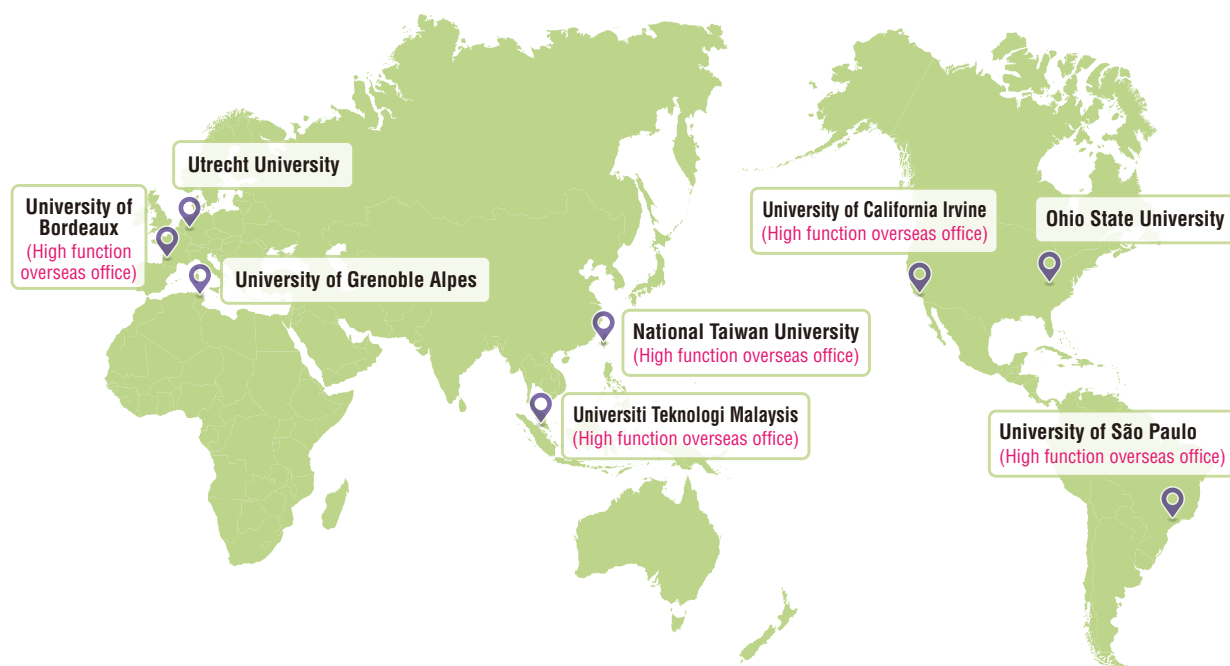


### Enhancing the Campus-in-Campus Program

Campus-in-campus is an initiative for mutually sharing campuses with partner universities overseas to promote transborder exchanges in education and research beyond national boundaries and institutional barriers. As part of this initiative, we signed a new agreement with Ohio State University, bringing the number of our CiC partner schools to eight. We are also moving ahead with proceedings to conclude an agreement with Bochum University and have reached the coordination stage regarding agreement details of the supplementary agreement.

In addition to expanding the registration of courses that make use of the characteristics of CiC partner schools, we registered approximately 2,400 courses in the course jukebox\* in addition to courses in English at the University of Tsukuba to provide courses based on students' interests and to promote studying abroad.

\* A system that allows overseas partner universities and the University of Tsukuba to mutually offer course subjects to students of their respective universities through what they university refers to as "the jukebox." Through this arrangement, students have the option of taking courses registered on the jukebox at overseas partner universities.



### In Search of Outstanding International Students

We took part in various promotional activities at local partner schools to stimulate interest in student exchanges under the CiC program. These included the Bordeaux University International Fair, the University of Sao Paulo Study Abroad in Japan information session, the National Taiwan University Study Abroad Fair and the University Technology Malaysia (UTM) International Cooperation Education Program. In addition, we both held and participated in study abroad fairs, visited high schools, and visited and held

information sessions at various education institutions in countries other than those of our partner schools. While gathering information on local trends in overseas study abroad, we established relations between our university and local universities.

In addition, we set up a CiC booth at on-campus study abroad fairs, and with employees of the University of Grenoble, with which we signed a CiC agreement in 2017, we engaged in PR with students interested in studying abroad.



### Utilizing Student Dormitories to Promote Cross-cultural Exchanges (Global Village)

The Global Residence Development Project, aimed at promoting internationalism on a daily basis, was completed in March 2018 after its construction in two phases, and began full-scale operation in AY2018 as the Global Village.

With a capacity of 500, this student dormitory is a facility for both Japanese and international students, and aims to cultivate students' sense of internationalism through interaction among students of various nationalities and holding events such as summer festivals and New Year's parties.

In addition, the Global Village also holds "Orikata hands-on classes" as incidental programs with local junior high and high school students and international students, and volunteers also hold ikebana classes and tea ceremonies to provide international students with opportunities to become acquainted with Japanese culture.



### Tsukuba Global Science Week (TGSW) International Conference

In September 2018, we held Tsukuba Global Science Week (TGSW) on the theme "Driving Sustainable Development." This year marked the ninth year of the TGSW, which is supported by the Cabinet Office, the Ministry of Education, Culture, Sports, Science and Technology (MEXT), the Ministry of Economy, Trade and Industry (METI), Ibaraki Prefecture, and Tsukuba City, and featured 273 presenters from 162 institutions from 33 countries. A total of 43 sessions were held during the week including joint sessions

with overseas partner schools and research institutes in Tsukuba Science City, and the event welcomed over 1600 visitors.

We also made efforts to promote exchanges with participants and promote the profile of Tsukuba Science City within and outside the area through discussions between stakeholders in government and industry and young researchers and engineers in AI and peripheral and applied fields as fundamental technologies supporting the realization of Society 5.0.

### Promotion of a "Tsukuba Conference" Concept Based on TGSW Results

To enhance the profiles of the university and Tsukuba Science City, we plan to hold the "Tsukuba Conference" as an international event where young researchers and students from Japan and other countries can discuss science and social issues based on results of the TGSW to date. In preparation for the conference, the Planning Committee, which has met four times, reviewed the program contents and session proposals.

Furthermore, in February, we held a symposium entitled

"Assessing Research in the Field of Humanities and Social Sciences - From Seeds to Needs" as a pre-event in the lead up to the conference, and in March, we were able to arouse interest by holding a round table discussion entitled "Let's think about the SDGs - What would you do if you could no longer eat fish?"





Promotion of Tsukuba International Strategic Zone Projects

In 2011, the Tsukuba Global Innovation Promotion Agency (TGI) was established as a center for industry-university collaboration to contribute to Japan's growth and development through the promotion of life innovation and green innovation utilizing the science and technology amassed in Ibaraki Prefecture and Tsukuba City. In 2012, TGI received certification as an International Strategic Zone and commenced its activities under its new status by launching four vanguard projects (Projects 1 - 4). In AY2018, with the addition of the "project to develop and commercialize

a useful substance production system that will contribute to improving human health utilizing plant functions" as the ninth project in the previous academic year, the TGI undertook research facility and infrastructure improvements at the Tsukuba-Plant Innovation Center. The TGI also provides support for the promotion of its respective projects by holding seminars for the general public where it presents a summary of the projects of the International Strategic Zone and then introduces each project to enable the general public to understand the significance of the projects.



<p><b>Project 1</b> ライフイノベーション</p> <p><b>BNCT</b> Boron Neutron Capture Therapy</p> <p>患者のQOLが高く経済的な負担も少ない、早期の次世代がん治療 (BNCT)の開発実用を図る。</p>	<p><b>Project 2</b> ライフイノベーション</p> <p>生活支援ロボットの 実用化</p> <p>世界に先駆けて生活支援ロボットの 安全性評価基準を確立し、国際標準を確立する。</p>	<p><b>Project 3</b> グリーンイノベーション</p> <p>藻類バイオマスエネルギーの 実用化</p> <p>石油代替燃料として期待される藻類バイオマスの 実用化を図る。</p>
<p><b>Project 4</b> グリーンイノベーション</p> <p>最先端技術の省エネ機器等の開発や 人材育成を一体的に推進し、 省エネルギー等の課題解決に貢献する。</p> <p>オープンイノベーション拠点</p>	<p><b>Project 5</b> ライフイノベーション</p> <p>つくば生物医学資源を 基盤とする革新的医薬品・ 医療技術の開発</p>	<p><b>Project 6</b> ライフイノベーション</p> <p>核医学検査薬 (テクネチウム製剤)の 国産化</p>
<p><b>Project 7</b> ライフイノベーション</p> <p>革新的ロボット医療機器・ 医療技術の実用化と 世界的拠点形成</p>	<p><b>Project 8</b> グリーンイノベーション</p> <p>戦略的都市鉱山 リサイクルシステムの 開発実用化</p>	<p><b>Project 9</b> ライフイノベーション</p> <p>バイオ・マテリアルの 植物生産</p>

Cooperation in Higher Education in Ibaraki Prefecture in the Future

Given the long-term outlook for a declining 18-year-old population, fostering the development of men and women who will live and work in an advanced knowledge-based society and be at the front line of revitalizing regional areas in the future is a challenge that will affect the future of Japan, and is one of the most important issues surrounding higher education in Ibaraki Prefecture.

Against this background, the Higher Education in Ibaraki

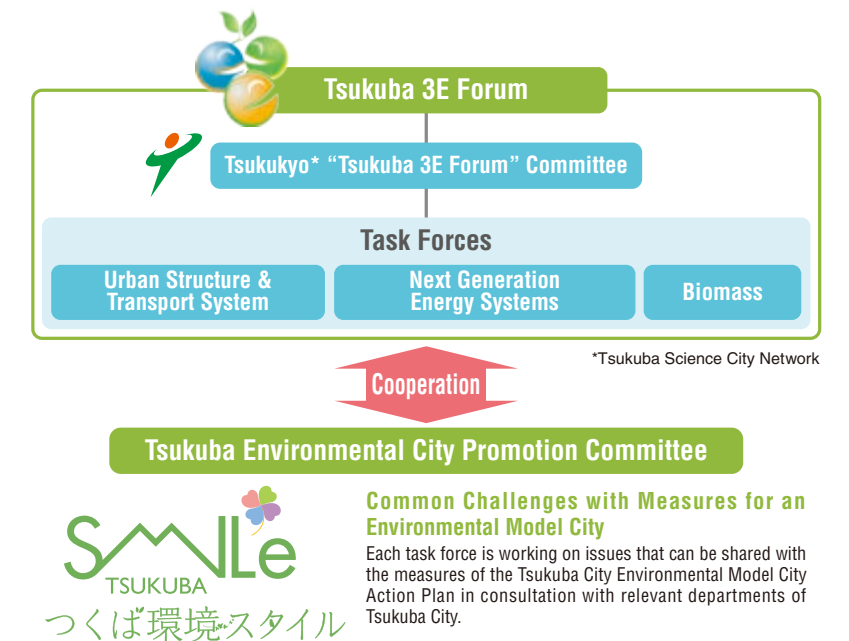
Prefecture Discussion Group was established as a venue for the three parties of local government, industry, and higher education institutes including universities to discuss the role higher education institutions can play in the region. After holding three rounds of discussions, the group plans to summarize its views in a report entitled "Higher Education of the Future in Ibaraki."



Promoting the 3E Forum

The Tsukuba 3E Forum, an initiative aimed at making Tsukuba Science City an energy-saving, low-carbon science city by strengthening the Tsukuba Science City network, engages in various activities including holding the 12th Tsukuba 3E Forum in January 2019. Under the theme, "The 3Es of the SDGs," the forum presented keynote speeches from representatives of private corporations, case studies by researchers, and a panel discussion that included representatives of local government. The 2019 forum

welcomed approximately 120 participants, an increase from the previous year. In addition, at the 17th World Lake Conference held in Tsukuba International Congress Center in October 2018, we exhibited environmental education teaching materials about hydroponics (next-generation recycling-type organic farming combining hydroponics and aquaculture) which the Biomass Task Force organized in the forum has been working on.



\*Tsukuba Science City Network

Common Challenges with Measures for an Environmental Model City

Each task force is working on issues that can be shared with the measures of the Tsukuba City Environmental Model City Action Plan in consultation with relevant departments of Tsukuba City.





Establishment of the Advanced Emergency Center

As a measure for strengthening emergency and disaster medical center functions, we established the Advanced Emergency Center in April 2018 and revised our Business Continuity Plan (BCP), which had been prepared in FY2016. The Advanced Emergency Center was newly established as a medical care facility within the hospital to receive patients with complications and intractable conditions on a 24-hour basis, and to accept critical emergency patients that are hard to treat at tertiary emergency facilities. Until now, there have been no approved Advanced Critical Care Centers in Ibaraki Prefecture, and the University Hospital has treated complications and cases requiring the resources of multiple medical departments and staff with a range of skills. Through the new establishment and operation of the Advanced Emergency Center and the provision of smooth patient coordination and backup functions with emergency medical centers and emergency hospitals, we are working to further enhance the emergency medical care framework and efficient operation of emergency medical facilities in Ibaraki Prefecture.



Our efforts to date were recognized in October 2019 when the University Hospital was designated by Ibaraki Prefecture as the prefecture's first Advanced Critical Care Center. The center will commence operation in April 2020. In addition to providing safe and secure emergency medical care, we will also strive to train emergency physicians as the core hospital of the emergency department specialist program.

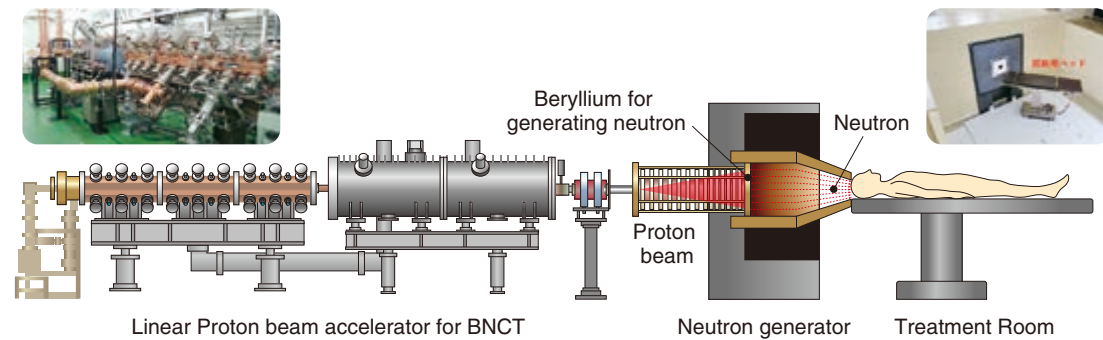
Research and Development of New Medical Technologies

The redesign and other measures to improve the performance of the BNCT\* system have been completed, and as it was assessed as having achieved the level of performance capable of conducting clinical trials, we decided to commence non-clinical trials in AY2019 in the lead-up to physician-initiated clinical trials for skin cancer and other conditions and will gradually proceed to undertake various clinical trials.

At the Center for Innovative Medicine and Engineering (CIME), we are conducting physician-initiated clinical trials and other clinical research aimed at new treatment for gait disorders of stroke

patients using the robot suit HAL. In driving simulator studies, the analytical results of data obtained from stroke and epilepsy patients are to be reflected in the Automated Driving Program Guidelines ASV-6 of the Ministry of Land, Infrastructure, Transport and Tourism. In addition, we have started clinical research on wearable devices using sensing technology.

\*BNCT (Boron Neutron Capture Therapy) is a treatment which selectively attacks and destroys cancer cells using a boron compound that is easily taken up by cancer cells.



Beryllium in a neutron generator is irradiated with a proton beam accelerated to about 13% of the speed of light by a linear accelerator to generate high-intensity neutrons. After adjustment to the energy level appropriate for medical treatment via the beam irradiation port, the neutrons are irradiated at the treatment site of the patient.

Results in Collaborative Research

The number of collaborative research projects accepted by the Tsukuba Clinical Research & Development Organization (T-CReDO) in AY2018 was 28, and the amount of funds received was 518 million yen. This was a 200% increase from the 14 projects of the previous academic year, and a 337% increase in funding from the previous academic year, which was 154 million yen.



Nurturing the Development of Global Human Resources

The High School at Sakado received accreditation as an International Baccalaureate school in February 2017. The International Baccalaureate (IB) program aims to foster the development of inquiring, knowledgeable and caring young men and women who will contribute to building a better and more peaceful world through a spirit of understanding and respect for diverse cultures. The IB program has a common curriculum throughout the world, and the High School at Sakado, which has established a diploma program for second-year and third-year high school students, commenced its first year of the program in AY2018 with nine students.

\*International Baccalaureate (IB): An international comprehensive educational program provided by the International Baccalaureate Organization to foster the development of students capable of dealing with the complexity of the world and fulfilling their responsibilities for the future, and to provide IB graduates an internationally recognized university entrance qualification (International Baccalaureate qualification).



Strengthening Cooperation Between the University and Affiliated Schools

University teachers, undergraduate students, graduate students, international students, and students of the Acupuncture and Physical Therapy Teacher Training School make use of the affiliated schools for their field research and other research activities, and later provide the research results to the respective schools. Some affiliated schools also hold study meetings in which university teachers, affiliated school teachers, and students participate. In addition, the affiliated schools conduct research activities in cooperation with the University of Tsukuba as well as other universities including project research that involves teaching advisors of the Education Bureau of the Laboratory Schools and all teachers of the affiliated schools.

For education activities, university teachers have held classes at the affiliated schools and, conversely, the affiliated school teachers have held classes at the university based on the results of education research activities at the affiliated schools.

The seven affiliated schools have also been used as venues for practical training including nursing experience, with 500 university students participating (approximately 40% from other universities) to date. Teachers at other universities have also conducted classes and engaged in counseling at the affiliated schools, and the affiliated schools have hosted inspection visits for universities overseas as well as observation visits for undergraduate and graduate students.



Development of an Inclusive Education Model

Until 2018, we held the "Kurohime Kogen Community Life," an ongoing three-day, two-night program to promote mutual understanding and exchanges through communal living of students from the ordinary schools and the special needs schools of the affiliated schools. Based on the success of this program, we held the "Miura Beach Community Life" program as a new two-day, one-night program in August 2018 in Miura City, Kanagawa Prefecture. Twenty-eight students from the Junior High School at Otsuka, Senior High School at Otsuka, Junior and Senior High Schools at Komaba, Senior High School at Sakado, Special Needs Education School for the Deaf, and Special Needs Education School for Children with Autism of the University of Tsukuba participated in the program for raising awareness concerning people with disabilities through joint activities such as marine sports, crafts and other activities.





Tsukuba Futureship

Since April 2010, the University has been awarding the Tsukuba Futureship to students who demonstrate potential to pave a new path for the future to provide them with a stable environment where they can concentrate on study and research and with opportunities to engage in various mutual exchanges as well as to contribute to promoting education and research at the university, and also social contribution activities.

The Tsukuba Futureship has both a General Fund and Specified Funds. The General Fund mainly provides financial support to elementary, secondary and tertiary students for study and research purposes and for international exchanges and development of global human resources.

The Specified Funds, which are established for the implementation of specific projects conducted by the university, are used for purposes such as training and strengthening athletes and teams in sports

clubs and developing human resources who will provide high-quality medical care at affiliated hospitals.

The Study Support Fund, which is a specified fund, provides support to students who have difficulty studying due to economic reasons. In accordance with the tax deduction scheme introduced under fiscal 2016 tax reforms, donors to this fund can receive a tax deduction by choosing either an "income deduction" or "tax deduction," whichever is more advantageous.

In addition to tax incentives for making donations, the university also gives commendations to donors based on the amount of their donations, as an expression of gratitude to donors.

For further details, please see the Tsukuba Futureship website. We thank you for your understanding of the mission of the Tsukuba Futureship and we look forward to your continued support.

151st Year Since Founding and 50th Anniversary of the University of Tsukuba



The University of Tsukuba traces its roots to the Normal School, Japan's first institution of higher education, founded in 1872. This institution underwent a number of transformations until it became the Tokyo University of Education, the immediate predecessor of the University of Tsukuba, which was established in 1973 as a "new concept university." Thus, in 2023, we will celebrate the 151st year since our founding and the 50th anniversary of the establishment of the University of Tsukuba.

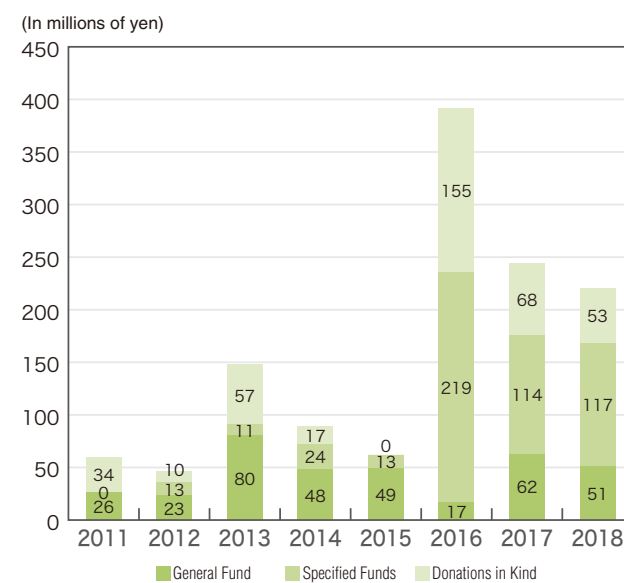
To realize our founding ideals, we established the "151st Year Since Founding and 50th Anniversary of the University of Tsukuba Commemorative Fund" for (1) the support of world-leading research and (2) the support of international exchanges and development of global human resources. We sincerely thank all stakeholders for your understanding of the mission of the fund and look forward to your support and cooperation.



AY2018 Cash Donations Received

Purpose of Donation	(In thousands of yen)	
	Donation Amount	No. of Donations
General Fund	51,380	3,071
Specified Funds	116,510	4,374
151st Year Since Founding and 50th Anniversary of the University of Tsukuba Commemorative Fund	13,900	1,350
University of Tsukuba Sports Association Project	5,496	309
University of Tsukuba Hospital Support Project	15,344	44
Shiho-kai Fund	36,835	1,372
Tsukuba Futureship Association for International Student Support	804	170
Junior High School and Senior High School at Komaba 70th Anniversary Fund	38,929	1,096
Student Support Project Fund	5,202	33
<b>Total</b>	<b>167,890</b>	<b>7,445</b>

Changes in Receipt of Cash Donations



Crowdfunding

In AY2017, we launched a business partnership with READYFOR Inc. for crowdfunding, a powerful tool for obtaining donations. In AY2018, we implemented five projects with a target funding amount of approximately 22 million yen.

However, we succeeded in raising approximately 29 million yen,

exceeding by far our initial target.

In the future, we hope to actively develop projects unique to our university and contribute to cultivating in Japan the act of making donations to causes a customary practice.



(3rd round) A serious challenge by a national university! Project to Revive the University of Tsukuba Hakone Ekiden



Creating a campus where everyone can learn together, with or without disabilities



Don't crush young talent! Aiming for medical checkups in sports with a compact MRI.



Why do people sleep? What is the optimal amount of sleep? Using the latest science to unlock sleep's mysteries

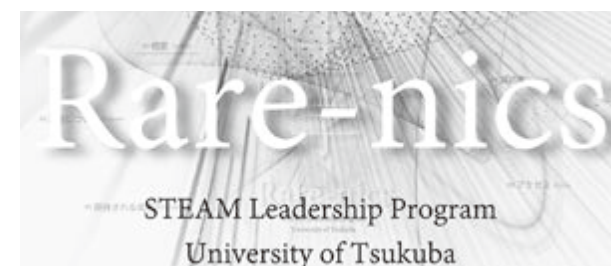


(Second Round) Exploring "Computational Diversity" in the World of Digital Nature

Extension Programs

To return to society the culmination of results of advanced, groundbreaking research and education of the university and Tsukuba Science City, the university invited researchers and celebrities active in various fields of business, government and academia as lecturers in the University of Tsukuba STEAM Leadership Program. The program focused on the latest issues in cutting-edge research and practices, the understanding of culture, and management, and featured content that could not be heard elsewhere. This program targeted candidates under consideration by presidents of companies as corporate executives, young professionals in management and planning, and young men and women who will be responsible for venture companies and organizations in the future. (The attendance fee was 3.5 million yen.)

In addition, the university held a total of 19 courses, including career and professional development courses which were attended by a total of 582 trainees and generated 54 million yen in tuition revenue.



Shopping Plaza Business

As a business that utilizes the funds and management expertise of private businesses, the university entered into a shopping plaza business agreement in April 2018 with private business operators in the southern district of the Tsukuba Campus to develop small shops to improve the welfare and convenience of students and teachers. Under this agreement, we renovated buildings with private-sector funding, and commenced operating the Sakura Terrasse in October.





Initiatives to Strengthen Management

Based largely on the National University Management Strategy (Ministry of Education, Culture, Sports, Science and Technology, June 2015), the university formulated management strengthening measures for the Third Mid-term Goals Period (approved by the Board of Directors on March 23, 2017), consisting of three pillars (strategy for acquiring external funds, development of profitable businesses, and a personnel strategy) aimed at reforming the revenue and expenditure structure to diversify the university's independent financial resources and strengthen the financial base. We are currently working to realize these measures. Results for AY2018 are as follows:

(1) Strategy for acquiring external funds

- 1) We acquired a total of 12,479 million yen, which was higher than the previous fiscal year, due mainly to an increase in sponsored and cooperative research and donations.
- 2) We held the University of Tsukuba Symposium on Industry-Academia Collaboration in March 2019 as an opportunity for matching companies with projects across the entire university, and more than 140 companies participated. Appealing to the attractive content of the university's research activities and industry-university collaboration, we have been working to promote partnerships with industry.

(2) Development of profitable businesses

- 1) Through cloud funding, five businesses acquired a total of 29 million yen.
- 2) In the extension programs, 19 courses generated a total of 54 million yen.
- 3) In funding projects, we established the "151st Year Since Founding and 50th Anniversary of the University of Tsukuba Commemorative Fund," and commenced receiving donations through deductions from faculty and staff salaries.

- 4) In regard to the effective use of land and other assets, we decided to commercialize "the development of the compound facility for accommodation and other purposes in the Kasuga area". We also conducted a probing market research study on the effective use of land in regard to the potential for use of the staff dormitory site owned by the university.

(3) Personnel strategy

- 1) We made efforts to curb personnel costs through effective initiatives including a review of teacher and staff arrangements.
- 2) The number of personnel assigned to development of new research fields reached 65.
- 3) The number of personnel contributing to efforts to recruit young, female and foreign teachers and strengthening research expertise has grown to 48.
- 4) With further promotion of the cross-appointment system, the number of applicable faculty reached 53.

Initiatives of the Office of University Management Reform

Review of the university's medium- to long-term strategy from a management perspective

The mission of the Office of University Management Reform is to prepare recommendations on specific measures for strengthening the university's future management base and requirements necessary for strengthening university management to enable the University of Tsukuba to continue to compete as an international university on the world stage 10 to 20 years from now and further develop education and research, bearing in mind future social changes and other changes in the environment surrounding the university. Therefore, to conduct a more fine-tuned, multifaceted review, we have even added external experts such as corporate

managers and marketing specialists to the collaborative framework of faculty and staff members.

In AY2018, the office engaged in discussions through a total of four plenary meetings and e-mail correspondence. In addition to taking part in discussions at meetings, each member responded to tasks such as examining measures and responding to inquiries and opinions, as well as seeking non-member, third-party opinions. The members also planned and undertook site visits to universities and other institutions in Japan and overseas, and engaged in market research concerning recurrent education.



Organizational Assessment Using Quantitative Assessment Analysis

An organizational assessment was undertaken using quantitative assessment indicators as the core, and expanded to include college units (equivalent to subjects) for schools, and program units or degree programs for graduate schools. In addition, organizations of other universities that share the same orientation in education and research were set as benchmarks for each organization, and after sharing comparative results of current values of the university organizations with values of benchmark organizations of other universities using various indicators, we engaged in discussions about revitalizing education and research. By establishing new benchmarks, we were able to share the direction of education and research and clarify goals in each organization through discussions within the respective organizations when setting the benchmarks and discussions through dialogue with the Executive Department during the organizational assessment.

In regard to budget allocations based on the organizational assessment results, we have newly added priority research centers and joint use/joint research centers as organizations for allocation, and we are striving for improvement in assessment procedures including a review of quantitative assessment indicators.



Initiatives for Realizing Diversity Management

In view of the need to establish a consultation framework for LGBT, we have conducted specialized seminars, for career counselors, to promote further cooperation within the university (in sharing information on cases within confidentiality obligations, for example).

Following on from being the first university to receive a Gold award in the previous academic year in the assessment indicator for initiatives related to sexual minorities such as LGBT by companies and organizations established by "work with Pride", a voluntary group, we were the first university to receive a Gold award in the previous academic year. We also received Gold in the Pride Indicator 2018 and were highly commended for our efforts in leading not only universities but also the corporate world.

We held the "Meeting with the University Executive Department to Consider the Research Environment of Female Researchers" to discuss matters such as the current status and issues related to research activities, work-life balance and careers of female researchers, and to review the framework of cooperation with organizations.



Initiatives for HR Development for University

We conducted five SD seminars and two crisis management seminars to share beneficial initiatives of the respective faculty support offices to promote global human resource development. We shared results of the university's initiatives in globalization and overseas training for administrative staff.

In addition to courses taken through the Open University of Japan, we adopted the TOEIC test (target: 500 points or above) as an option in grade-based training for staff at the time of promotion to chief and faculty head to further raise awareness in practicing internationalism in everyday life, which is one of the university's aims.







Message from the President

### Setting our Focus on the SDGs and Beyond as a University and People of Learning

The heart of a university is steadfast dedication to advancements in research and education that contribute to society. We must come up with solutions to questions not yet answered by looking beyond the sustainable development goals.

#### The consciousness of a research university

Of the utmost importance is that we figure out to what extent we can contribute to the SDGs, but not simply apply University of Tsukuba initiatives to the SDGs.

The University of Tsukuba is a research university. We are taking initiatives daily to handle a myriad of issues that must be resolved based on a comprehensive framework of our fundamental, applied and developmental research, and pass the knowledge obtained in these efforts to the people we educate. It is vital that each of our researchers first and foremost be conscious of how they are satisfying the SDGs in the course of their research.

#### Researcher comprehension of societal contribution

If you are short-sighted in the way you look at your research, you may not see the way it is connected to the SDGs, but if you take a broader view, you may discover connections in surprising places. It is not until we meet these requirements that we can achieve the sustainable development that will maintain the health of our planet and create a framework for society that's easier to live in, where everyone can pursue happiness.

In pursuit of convenience and efficiency, implementation of results born of industry-university collaborative research in the form of products and social systems may go against the fulfillment of SDGs. We must ensure this does not occur. Constant awareness of the connection between each researcher's research and society is what leads to true societal contribution.

#### Educational practices from the perspective of SDGs

It is our hope that current students who will shoulder the

weight of society will become people who understand a multitude of social matters and take action upon themselves. Because SDGs are globally universal goals, they make for easy-to-understand teaching guidelines. At our university, we recommend and practice *Musha Shugyo*-style (knight errantry) study. This style of education allows students to select issues, gather the required information, and present results on their own.

#### What lies beyond fulfillment of SDGs?

It is predicted that SDGs will be fulfilled in 2030. At that time, it will be vital that we not become complacent and instead be able to work towards the next step.

If we consider the present state the destination, then the progress of humanity and society comes to a halt. There is no point to being a university if we cannot discover what is beyond the SDGs based on our awareness of both the past and present.

In the future, the structure of society will change dramatically. It is predicted that at least 50% of jobs will be lost due to the proliferation of AI, so we must closely monitor the dynamics of society moving forward. It is essential that we pursue what it is that only people can do. We have to build new forms of scholarship in order to discover what is needed to face and overcome the unknown. Cross-contextual university activities are essential to our exploration of what lies beyond the SDGs once they have been fulfilled.

At present, I have no answer to the question of what lies beyond once the SDGs have been fulfilled. This is what we and the students of our university must now consider. But, instead of providing the answer, we will find it together through trial and error. That is the way of university research and education.

### SDGs (Sustainable Development Goals)

The SDGs are international goals for sustainable development from 2016 to 2030 adopted at the 2015 United Nations Summit and stated in the 2030 Agenda for Sustainable Development. Consisting of 17 goals and 169 targets for a sustainable world, the SDGs pledge to leave no one behind.

Aiming for the 17 goals to realize a sustainable world, the university is making efforts to achieve all 17 goals of the SDGs through activities such as research projects and student support engaged in research units.



The figures above indicate the number of University of Tsukuba initiatives for the respective goals.

### Examples of University Initiatives



#### Development of New Environmental Control Technology through the Control of Microorganisms

##### Microbiology Research Center for Sustainability

The earth's ecosystem is teeming with microorganisms, and this ecosystem is protected by the relationships between microorganisms and animals, plants, and other microorganisms. However, much of this remains unexplained by cutting-edge science. The Microbiology Research Center for Sustainability (MiCS) conducts research and development aimed at innovations for protecting water, soil, human food, and health through the development and elucidation of new technologies that explore the relationship between microorganisms and other entities.

For example, microspectroscopy technology developed by the university sheds light on the interaction between enterobacteria and humans, pathogens and plants, and microorganisms at the molecular and cellular levels. Researchers at MiCS are also studying the role of microorganisms in ecosystems. By "listening to conversations" between microorganisms and other entities through this research, we have been able to obtain various basic insights that will contribute to innovation in areas such as probiotics, crop disease control, and improved water treatment technology.



Various microorganisms that protect humans and the earth



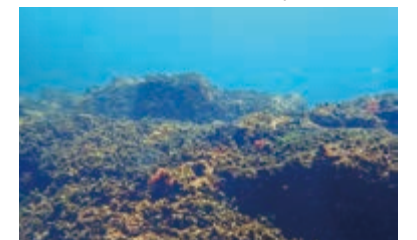
#### Comprehensive Understanding of the Effects of Ocean Acidification on Marine Ecosystems

##### Shimoda Marine Research Center Marine Biology Research Unit

Utilizing the multidisciplinary researcher network of the University of Tsukuba centered on the Shimoda Marine Research Center and cooperative research with research institutions in Japan and overseas, the center aims to establish an integrated understanding of marine products and their ecosystems. In terms of SDG goals, the research unit provides support from the perspective of basic science on marine acidification, for which Japan has expressed its active support at the United Nations Conference to Support the Implementation of Sustainable Development Goal 14. Specifically, unit members will take the lead in conducting research on the transition in ecosystems (changes in species and number of organisms) in CO<sub>2</sub> seepage that has been discovered around the world, mainly in fields in Shimoda and Shikinejima, and joint research in Japan and internationally on the impact acidification is having on individual gene expression and biophysiology.

Members of the research unit will also consult with researchers in Japan and other countries whose work is closely related to the activities of the research unit such as the research of JAMSTEC, Plymouth University and Xiamen University, and engage in in-depth discussions on ways to link scientific achievements and policies.

Through such discussions, the university aims to make an international contribution from the perspective of basic science.



Marine ecosystem

The Driving Sustainable Development website contains a message from the president as well as messages from faculty members who are deeply involved in the SDGs, and articles on research projects being conducted by the research center and research units. <https://www.osi.tsukuba.ac.jp/sdgs/>





**Initiatives for  
Strengthening  
Governance**



Under the leadership of the president, the university decides on the roles and responsibilities of the internal organizations, and establishes appropriate decision-making procedures. In particular, the university has been making efforts to further strengthen governance and execute prompt business operations through the appointment of university executive officers and Management Committee, which are systems unique to our university.

University Officers

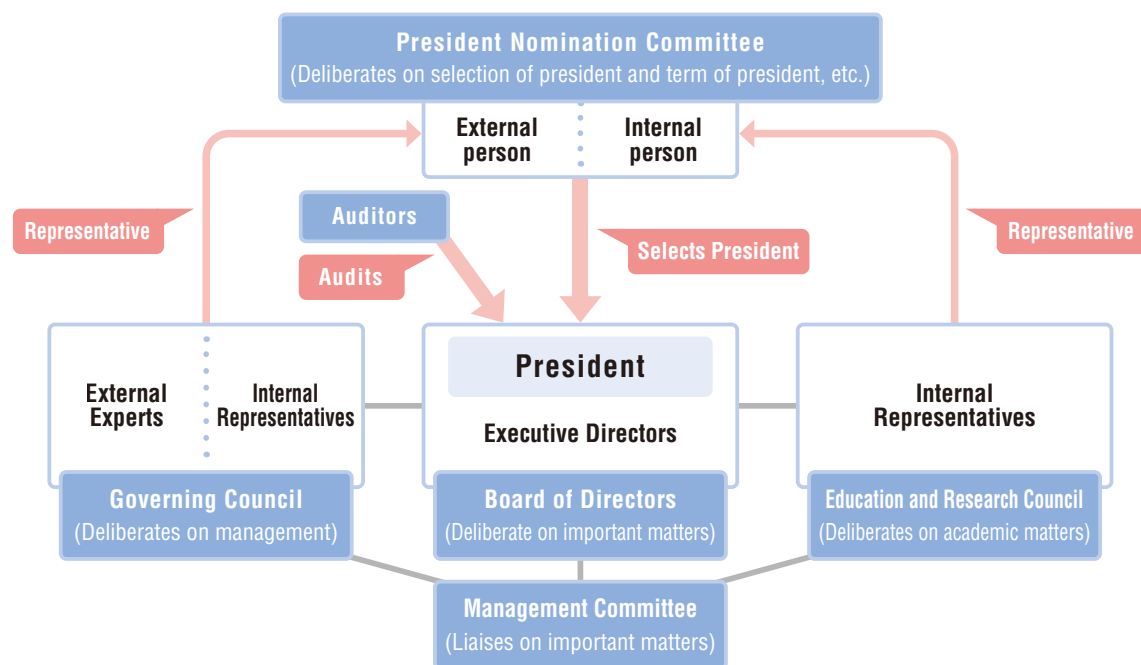
- The president is selected by the President Nomination Committee and is appointed by the Minister of Education, Culture, Sports, Science and Technology. The President Nomination Committee is composed of members selected from external members of the Governing Council and members selected from the Education and Research Council to reflect not only views on campus but also views of society at large.
- The executive directors (8) assist the president in managing the affairs of the university corporation.
- The vice presidents (10 in total, 8 of whom are concurrent directors) assist the president, receive orders from the president, and manage school affairs.
- The university executive officers (15) support the president, receive orders from the president, and supervise specific duties under the university's unique system. The faculty heads (10), who head the faculty organizations, and persons (5) who are in charge of specific tasks are responsible for these duties.
- The auditors (2) are appointed by the Minister of Education, Culture, Sports, Science and Technology. In addition to auditing the university on a regular basis, the auditors cooperate in assessing the performance of the president at the annual meeting of the President Nomination Committee.

\*Furthermore, although not a director of the university, the accounting auditor is appointed by the Minister of Education, Culture, Sports, Science and Technology, and conducts audits of the financial statements, business reports (financial segments) and financial results.

Deliberating Bodies of the University

- The Board of Directors deliberates on important matters concerning administration, and meets once a month. It is comprised of the president and executive directors (8). The auditors and vice presidents also attend board meetings.
- The Governing Council is an organization which deliberates on important matters concerning management and meets seven times a year. It consists of the president, seven full-time executive directors appointed by the president, and 11 off-campus council members. To reflect the views of the wider society, the majority of the members are off-campus members. With other officers such as auditors, vice presidents, university executive officers and general managers of administrative organizations also in attendance, the Governing Council serves as a venue where a wide range of opinions can be exchanged.
- The Education and Research Council deliberates on important matters concerning education and research, and meets once a month. Comprised of the president, executive directors, vice presidents, heads of departments such as the university schools and colleges, and persons appointed by the president (total of 51 members), the Education and Research Council serves as a venue where the heads of all the organizations responsible for education and research at the University gather together.
- The Management Committee, which is a system specific to our university, serves as a liaison and coordinating organization in important matters concerning the management of university affairs. Comprised of the president, executive directors, vice presidents, university executive officers, and auditors (27 members), the Management Committee meets once a week to allow for flexible management. All matters discussed by the above councils go through the Management Committee. A characteristic of this committee is that the heads of the faculties, who are the heads of the teacher organizations, participate in decision-making from the initial stages as university executive officers of the university.

Governance Framework



The university has established the Education and Research Funds Misuse Prevention Plan to prevent the wrongful use of research funds and other funds, and has taken various measures to eliminate the causes of misuse and promote appropriate use of funds. The university also strives to raise awareness by implementing compliance education for faculty and staff, and has established a framework for strengthening the organization to ensure that it can respond to risks at an early stage.

Misuse Prevention Plan

We have established a system of accountability in regard to the management of research expenses, with the president as the chief administrative officer, and we have clarified roles and responsibilities under this system. The general managing officer, who assists the chief executive officer and supervises the organization-wide framework, organizes the Education and Research Expense Management Promotion

Committee and establishes the University of Tsukuba Research Funds Misuse Prevention Plan to identify the causes of misuse and to eradicate these.

Based on this misuse prevention plan, the department officers prevent the misuse of research funds, take measures to promote proper use, monitor the status of management in the respective departments which they manage and supervise, and provide guidance for improvement.

The Office of Auditors monitors the progress and penetration of each measure from a university-wide perspective, and reports to the Chief Executive Officer.

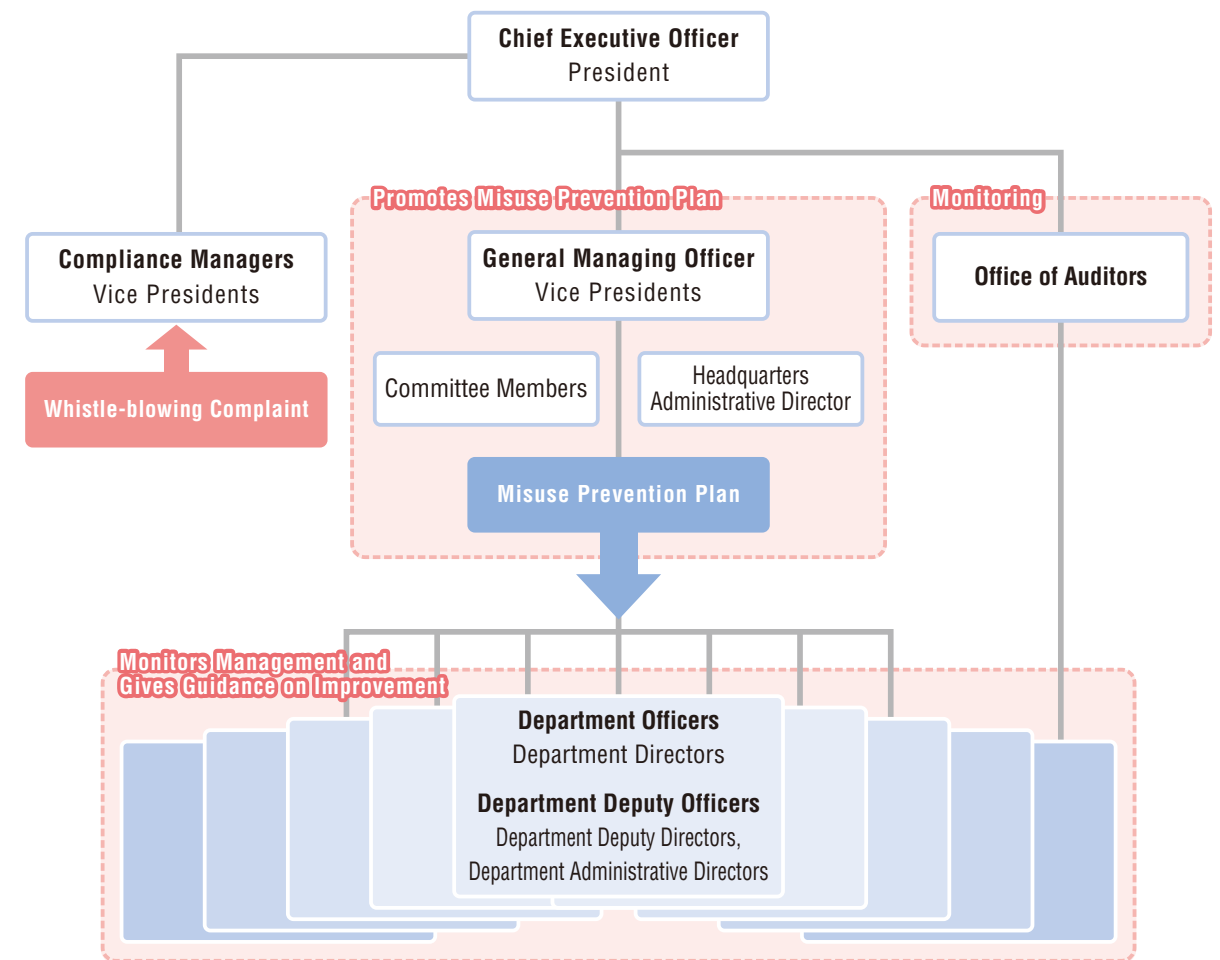
Establishment of an Environment for Appropriate Use

Accounting rules are reviewed in a timely manner based on actual conditions of business to ensure consistency in their operation.

To ensure all accounting rules are easy for faculty and staff to understand, we have prepared the Accounting Rules Handbook. In addition, we make efforts to educate and raise awareness of faculty and staff by providing instruction on compliance and other matters through e-learning.

Under the vice presidents, who are the compliance managers, we have also established a system for addressing risks at an early stage to promote the soundness of the organization. For example, we have set up a contact desk for accepting from both inside and outside the university whistle-blowing complaints concerning misuse, as well as investigation guidelines concerning misuse to facilitate prompt investigation of details of the complaints.

Framework for Preventing Misuse



Initiatives to prevent the misuse of research funds at the university are also posted on the university website. <http://www.tsukuba.ac.jp/research/guideline.html>

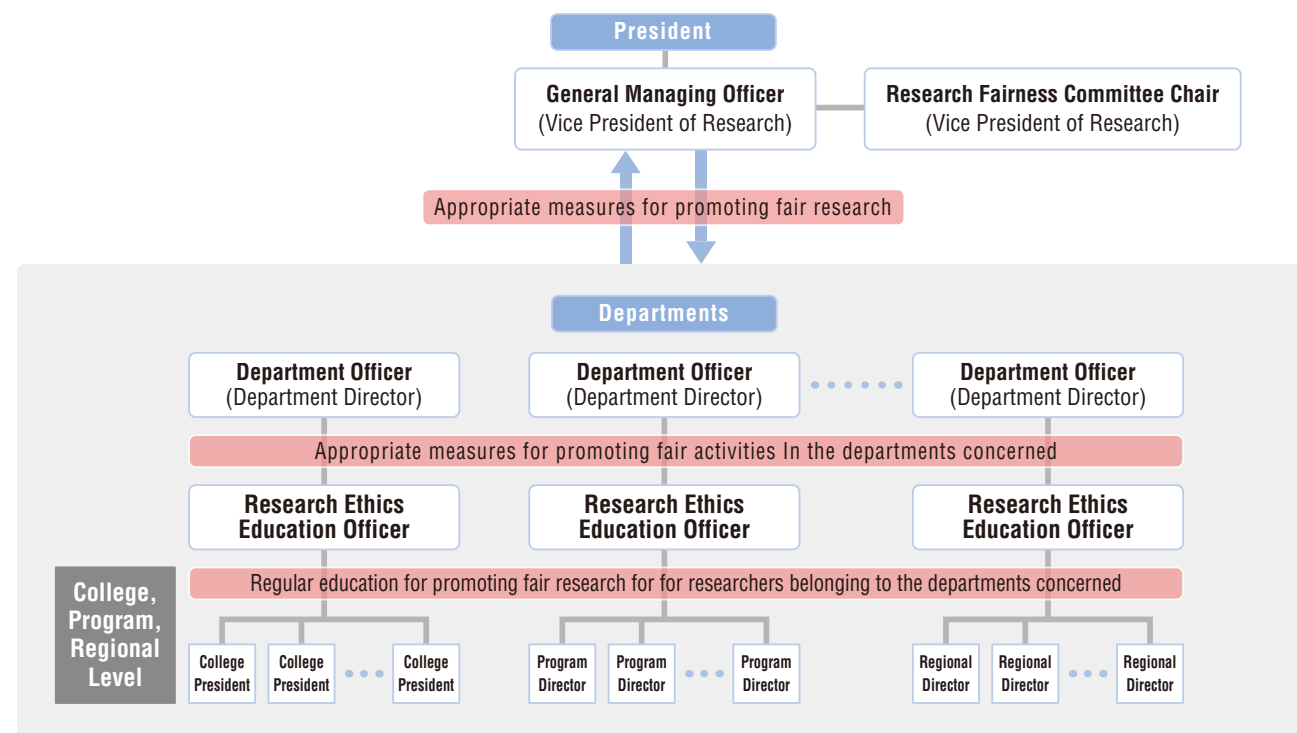


The University of Tsukuba has established the University of Tsukuba Research Fairness Rules to prevent inappropriate conduct and to put in place a framework for realizing fair research activities. The university has also established guidelines for research ethics education and the storage of research materials and strives to maintain fair research activities.

Establishment of a Framework for Promoting Fair Research Activities

Based on the Guidelines for Responding to Misconduct in Research Activities (decided by the Minister of Education, Culture, Sports, Science and Technology), we established the University of Tsukuba Research Fairness Rules and a framework consisting of a general management officer (Vice President of Research), department officers (department directors), Research Ethics Education Officers (appointed by the director in each department ), and the Research Fairness Committee.

Framework for Promoting Fair Research Activities



Guidelines for Research Ethics Education (March 2, 2017, decided by the President)

Research ethics education aims to ensure that researchers engage in responsible research activities by independently observing norms, thereby establishing trust in science and contributing to the sound development of science.

Method of Study and Period of Implementation (University Faculty)

- Research ethics training at the time of recruitment
- Obligation to undertake regular study through Research Ethics e-Learning (eL CoRE or eAPRIN)
- Regular participation in research ethics FD workshops
- Research ethics training based on characteristics of the research field

Guidelines for the Storage of Research Materials, etc. (March 2, 2017, decided by the President)

Researchers are required to store research materials to prove the validity of their activities in the event any doubt arises concerning research misconduct or to ensure the possibility of third party verification. Furthermore, because the results of research and the data on which they are based have the characteristics of public assets, it is the responsibility of each researcher and the university to properly manage and preserve research materials.

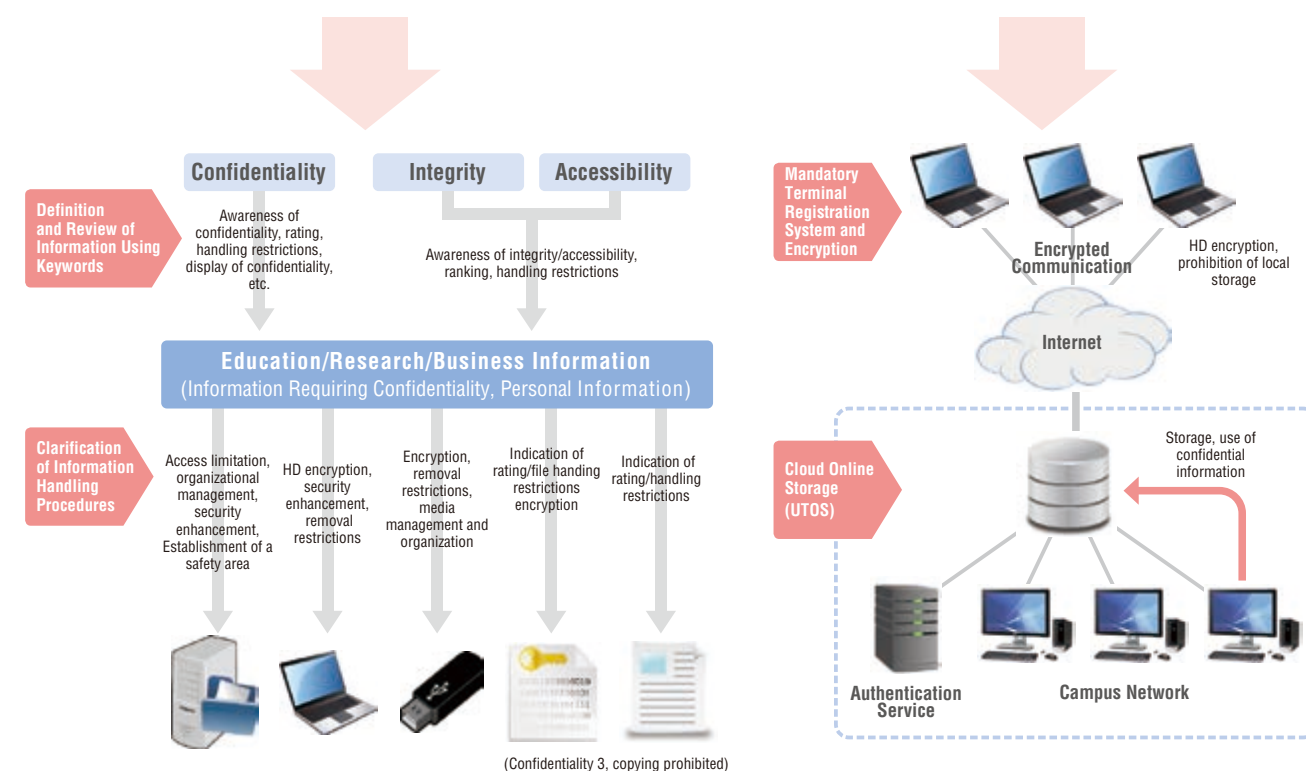
Data and Material Subject to Storage Obligations, Storage Period and Storage Method

- The storage period for documents (documents, numerical data, images, etc.) is 10 years after their publication.
- The storage period of objects such as specimens (experimental samples and specimens) and equipment is five years after the publication of the paper concerned.

The University is making efforts to strengthen the security of its risk management and network system by making information security education mandatory and through audits. For example, since fiscal 2018, we have established an information security management system that is recognized internationally in terms of rating the confidentiality of information and establishing a dedicated system for storing confidential information.

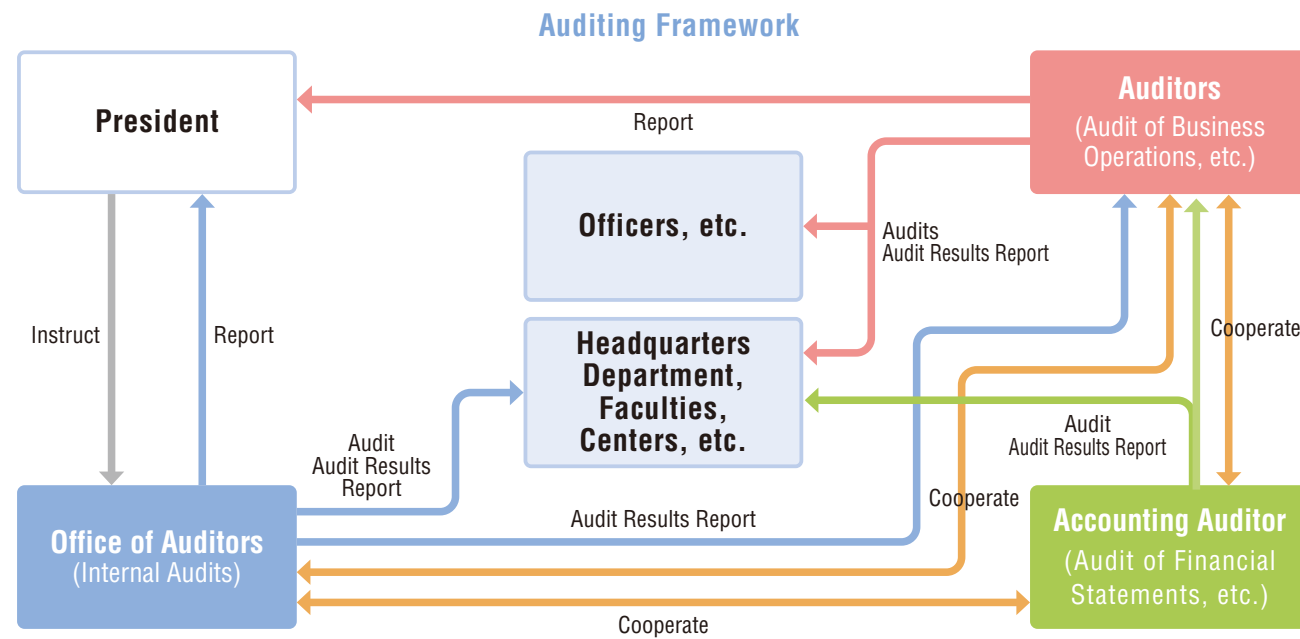
<b>Education</b>	Information security education through e-Learning and seminars for students and faculty <ul style="list-style-type: none"> <li>○ Students and faculty: e-Learning (INFOSS Information Ethics)</li> <li>○ Faculty, staff and students: information security seminars</li> <li>○ System administrators: security technology seminars</li> </ul>
<b>Risk Management</b>	Information security audits <ul style="list-style-type: none"> <li>○ Since AY2016, audits in cooperation with the Office of Auditors and the Information Security Risk Management Office on the status of systematic initiatives for information security and the status of incident response systems, etc. for five departments selected in part</li> <li>○ Follow up audits for departments audited the previous academic year</li> </ul>
<b>Network System Security</b>	Initiatives to prevent incidents, minimize damage, and prevent damage from spreading <ul style="list-style-type: none"> <li>○ In preparation for advanced cyber-attacks,</li> <li>○ Commenced university-wide monitoring of backbone network system security measures (URL filters, sandboxes, etc.)</li> <li>○ Commenced vulnerability diagnosis using vulnerability check tools</li> <li>○ Conduct penetration testing for the three core university systems (Ministry of Education)</li> <li>○ Participated in NII's "Building an Infrastructure for an Information Security System Grounded in Inter-University Collaboration" and established an unauthorized communication monitoring system on SINET5</li> </ul>
<b>Confidentiality Management</b>	Clarified information handling procedures based on the definition and review of information using keywords for rating confidentiality of information and confidentiality (system aspects) <ul style="list-style-type: none"> <li>○ Undertook the rating of information handled in work duties, formulated information handling restrictions and handling procedures based on information rating, and introduced these in AY2018</li> </ul>
<b>Confidential Information</b>	Established a dedicated system for storing confidential information and operation rules requiring mandatory registration on user terminals (equipment) and encryption of terminals <ul style="list-style-type: none"> <li>○ Developed a cloud-based online storage system (UTOS) to prevent taking confidential information off campus, and commenced operation in 2018</li> <li>○ Formulated rules for mandatory registration on and encryption of UTOS user terminals</li> </ul>

Reinforced in AY2018!





The university cooperates with business operation audits of the auditors, internal audits of the Office of Auditors, and audits of the accounting auditor, and makes efforts to verify these to improve the quality of education and research, and maintain and improve the appropriateness, rationality, efficiency, and soundness of business operations.



## Audits by Auditors

### 1. Audits

To execute duties appropriately, maintain an impartial attitude and independent stance, and at the same time communicate their intentions to officers, staff and the accounting auditor, the auditors strive to collect information and maintain the audit environment to appropriately and efficiently manage business of the university corporation. In addition, by focusing on dialogue across the university and its organizations as a whole, the auditors promote the sharing of goals and issues, and provide necessary advice and proposals for solving issues through their audits.

### 2. Audit Items

- (1) Audits concerning business operations
- (2) Audits of financial results, financial statements, and management of surplus funds

### 3. Audit Reports

The auditors prepare a written opinion and present it to the president and other parties concerned regarding audits related to business operations.

In addition, the auditors prepare an audit report concerning financial results and submit it to the Minister of Education, Culture, Sports, Science and Technology.

## Internal Audits by Office of Auditors

### 1. Audits

The Office of the Auditors investigates and verifies the status of execution of business operations from the viewpoint of legality, rationality and efficiency from a fair and objective standpoint, and based on its results, provides information as well as advice, suggestions and support for improvement in business operations.

### 2. Audit Items

- (1) Audit concerning accounting operations (including monitoring of the Education and Research Funds Misuse Prevention Plan and status of staff work)
- (2) Audit concerning public research funds
- (3) Audit concerning information security
- (4) Cooperation with auditors' audits

### 3. Audit Reports

The Office of Auditors prepares an audit report and presents it to the president. The auditors also disseminate their findings and precautions to be taken in the audit to thoroughly prevent similar cases from recurring, and they carry out follow-up audits the following academic year.

## Audits by the Accounting Auditor

The financial statements and reports on financial results are audited by an accounting auditor appointed by the Minister of Education, Culture, Sports, Science and Technology. In addition, the university holds timely meetings with the president, auditors, and the Office of the Auditors to share information on issues in accounting procedures and other matters.





Financial Conditions

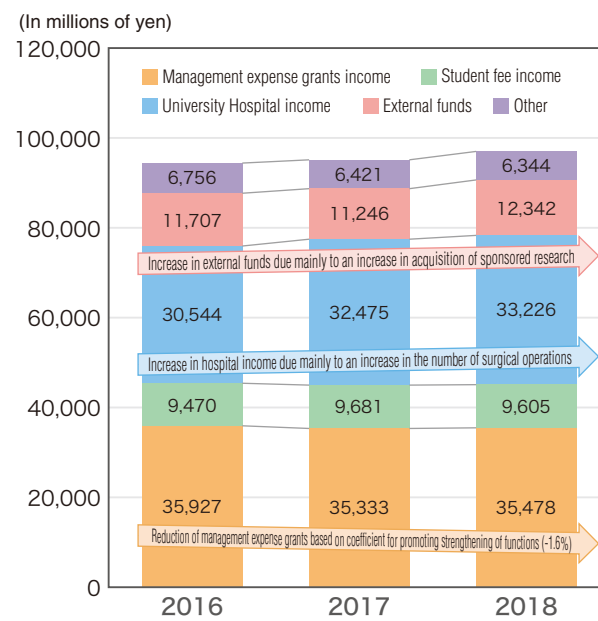
The university's management expense grants from the government are reduced by more than 300 million yen each year based on a coefficient (-1.6%) aimed at making universities independently strengthen their functions. At the same time, conditions surrounding university management are becoming increasingly severe as expenditure grows due to the consumption tax hike and other factors.

Therefore, to diversify non-subsidy financial resources and strengthen the financial base, we formulated management strengthening measures in the Third Mid-term Goals Period consisting of three pillars: a strategy for acquiring external funds, the development of profitable businesses, and a personnel strategy. We are currently working to reform the revenue and expenditure structure based on these goals.

The figures below show changes in the Profit and Loss Statement over a three-year period. As a trend in income in recent years, the income of the University Hospital has been increasing significantly due mainly to an increase in the number of surgical operations and outpatient chemotherapy treatments. In addition, the receipt of external funds from private companies in particular is growing due to the steady execution of measures to strengthen management capabilities (strategy to acquire external funds). At the same time, there have been increases in expenses, namely medical expenses for medical supplies and medical materials, etc. associated with an increase in income of the University Hospital, and personnel expenses resulting from an increase in the number of medical staff including doctors to further strengthen the functions of the University Hospital.

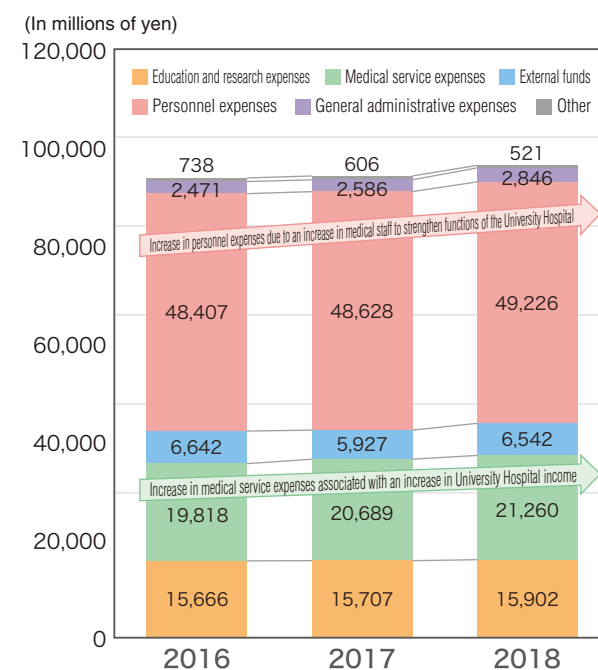
Ordinary Income

(In millions of yen)			
Resource Classification	AY2016	AY2017	AY2018
Management expense grants income	35,927	35,333	35,478
Student fee income	9,470	9,681	9,605
University hospital income	30,544	32,475	33,226
External funds	11,707	11,246	12,342
Donation income	2,053	2,164	2,496
Sponsored research income	4,911	4,156	4,695
Joint research income	1,194	1,253	1,587
Sponsored operations income	1,406	1,353	1,320
Subsidy income	2,143	2,320	2,244
Other	6,756	6,421	6,344
<b>Total</b>	<b>94,404</b>	<b>95,156</b>	<b>96,995</b>



Ordinary Expenses

(In millions of yen)			
Resource Classification	AY2016	AY2017	AY2018
Education and research expenses	15,666	15,707	15,902
Education expenses	6,477	6,743	6,833
Research expenses	6,846	6,771	6,756
Education and research support expenses	2,343	2,193	2,313
Medical expenses	19,818	20,689	21,260
External funds	6,642	5,927	6,542
Sponsored research expenses	4,261	3,568	3,951
Joint research expenses	1,085	1,126	1,391
Sponsored operations expenses	1,296	1,233	1,200
Personnel expenses	48,407	48,628	49,226
General administrative expenses	2,471	2,586	2,846
Other	738	606	521
<b>Total</b>	<b>93,742</b>	<b>94,143</b>	<b>96,297</b>



\*Subsidies and donation expenses are included in education expenses, research expenses and personnel expenses.

Financial Conditions

Research-related expenses (\*1) are mainly expenses required by faculty members for research activities. Research-related expenses in the university segment (\*2) in fiscal 2018 were approximately 27 billion yen, a year-on-year increase of approximately 300 million yen.

The breakdown of financial resources of research-related expenses shows that external funds account for about 49%, which together with operating expense grants constitute the financial resources that support the university's research activities.

To further invigorate research activities of the university as management expense grants decline annually, it is important to acquire further subsidies and to increase cooperative research and

sponsored research from private companies.

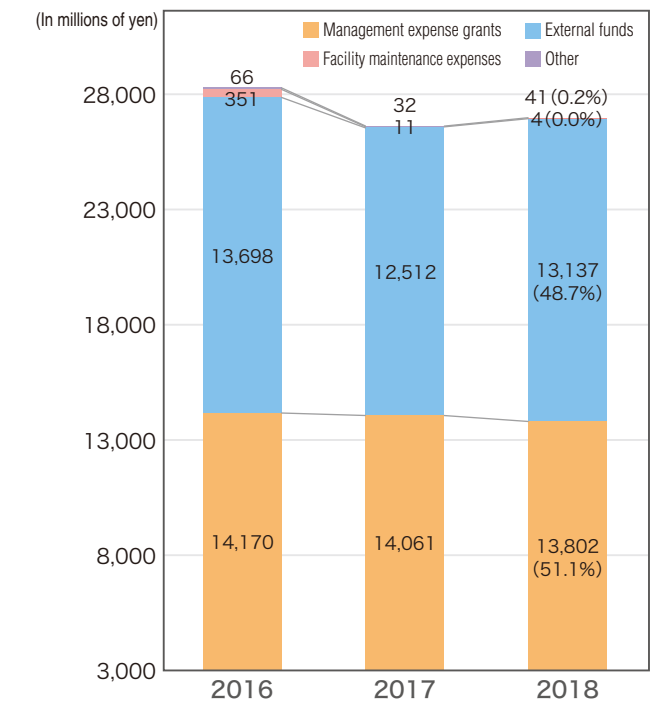
The breakdown of research-related expenses shows that property expenses accounted for 31% of expenses, and the breakdown of property expenses shows that compensation/consignment commissions accounted for 24%, and consumables accounted for 21% of property expenses.

\*1. Research-related expenses include in part personnel expenses and education and research support expenses based on the research effort rate of teachers  
\*2. Excludes the University Hospital segment and affiliated school segment

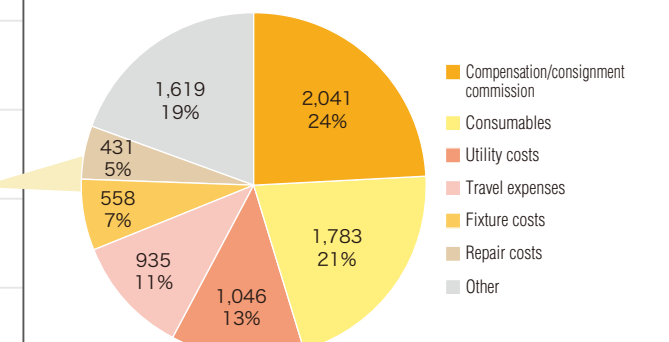
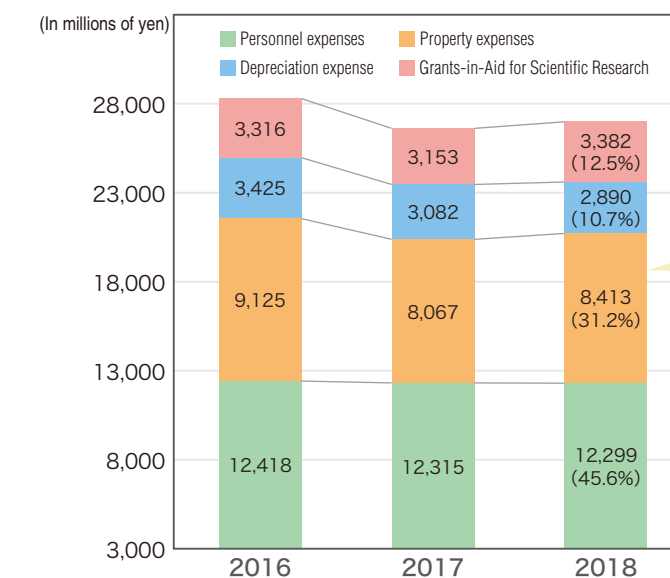
Breakdown of Financial Resources

(In millions of yen)			
Resource Classification	AY2016	AY2017	AY2018
Management expense grants	14,170	14,061	13,802
External funds	13,698	12,512	13,137
Donations	822	846	972
Sponsored research	4,047	3,121	3,164
Joint research	993	1,012	1,151
Sponsored operations	1,021	966	869
Subsidies	1,530	1,493	1,364
Grants-in-Aid for Scientific Research	3,694	3,528	3,773
Indirect expenses	1,592	1,547	1,844
Facility maintenance expenses	351	11	4
Other	66	32	41
<b>Total</b>	<b>28,285</b>	<b>26,617</b>	<b>26,984</b>

\*Management expense grants includes management expense grants and non-subsidy revenue such as other miscellaneous revenue



Breakdown of Expenses





Financial Status

Education-related expenses (\*1) are mainly expenses required for student education activities such as classes and extracurricular activities. Education-related expenses in the university segment (\*2) in fiscal 2018 were approximately 16 billion yen, and we secured the same level of financial resources as in other years.

A look at the breakdown of financial resources for education-related expenses shows that management expense grants accounted for 91% of financial resources.

The breakdown of expenses for education-related expenses shows that property expenses accounted for 33%, and the breakdown of building expenses shows that scholarship expenses accounted for 24% of these. This is due to waiving all or part of the enrollment fees and tuition of students who have difficulty paying due to economic reasons or students who are recognized as having outstanding grades, and therefore have future prospects as human resources capable of performing as individuals in various

capacities in a global environment.

In addition, our university has excellent physical education facilities and student dormitories on a vast campus, and the ratio of consignment expenses for maintenance and management, utilities costs, and repairs is also high. Thus, costs for education tend to be higher than other universities.

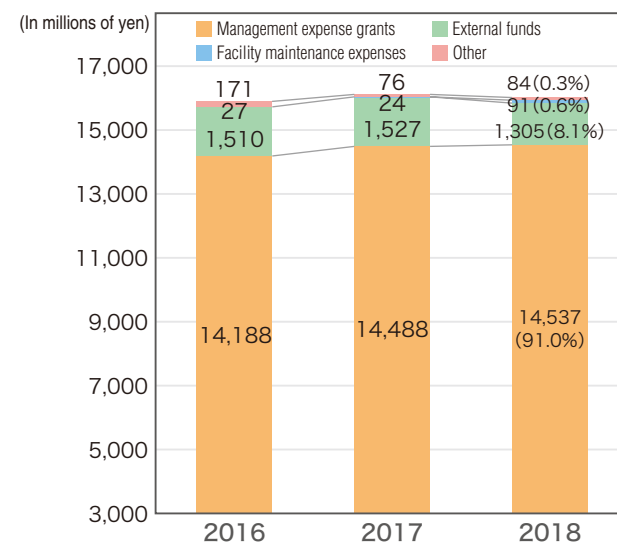
To further improve the quality of education, it is important to secure and diversify financial resources by increasing voluntary financial resources through an increase in non-subsidy income by developing profitable businesses, obtaining subsidies and receiving donations.

\*1. Education-related expenses include in part personnel expenses and education and research support expenses based on the education effort rate of teachers  
\*2. Excludes the University Hospital segment and affiliated school segment

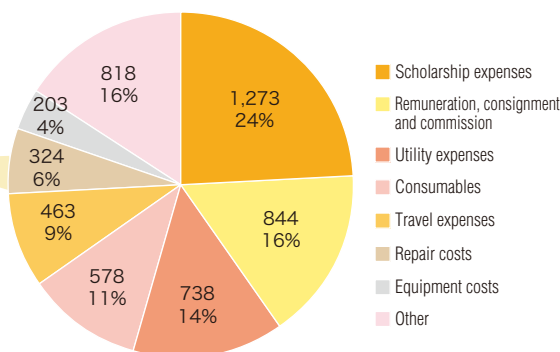
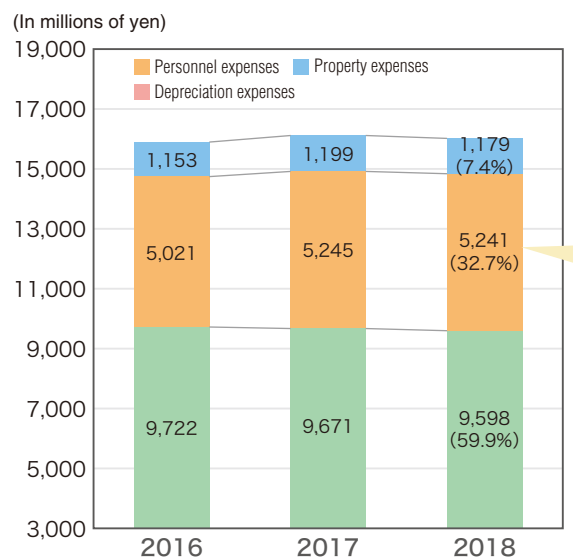
Breakdown of Financial Resources

Resource Classification	AY2016	AY2017	AY2018
Management expense grants	14,188	14,488	14,537
External funds	1,510	1,527	1,305
Donations	351	375	392
Subsidies	1,159	1,152	914
Facility maintenance expenses	27	24	91
Other	171	76	84
<b>Total</b>	<b>15,897</b>	<b>16,115</b>	<b>16,018</b>

\*Management expense grants  
Includes management expense grants and non-subsidy revenue such as other miscellaneous revenue



Breakdown of Expenses



Financial Status

Expenses in the medical segment for fiscal 2018 were 38.3 billion yen, a year-on-year increase of approximately 1.8 billion yen.

A look at the breakdown of the financial resources of the University Hospital segment shows that hospital revenue has increased significantly and external funds have also increased. The increase in hospital revenue is due to an increase in the number of externality operations and outpatient chemotherapy treatments, and the increase in external funding is due to an increase in sponsored research and joint research stemming from the active promotion of research and development of new treatments, which is the role of

an affiliated hospital of a comprehensive research university.

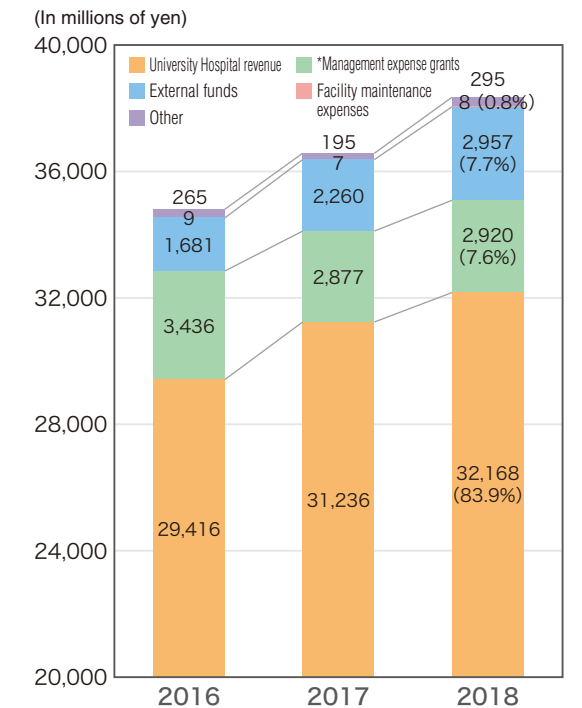
In addition, donations (endowed courses) are increasing due to the expansion of regional medical education centers in Ibaraki Prefecture as places for training human resources such as clinicians and clinical researchers, and as places for medical treatment.

In the future, new expenses such as the consumption tax hike and expenses due to hospital redevelopment including the refurbishing of wards are expected. Therefore, efforts to provide more efficient and effective medical treatment and stabilize the management base are vital.

Breakdown of Financial Resources

Resource Classification	AY2016	AY2017	AY2018
University Hospital revenue	29,416	31,236	32,168
Management expense grants	3,436	2,877	2,920
External funds	1,681	2,260	2,957
Donations	780	866	1,010
Sponsored research	213	446	788
Cooperative research	92	115	241
Sponsored operations	216	198	220
Subsidies	251	430	400
Grants-in-Aid for Scientific Research	30	32	35
Indirect expenses	100	173	263
Facility maintenance expenses	9	7	8
Other	265	195	295
<b>Total</b>	<b>34,806</b>	<b>36,575</b>	<b>38,347</b>

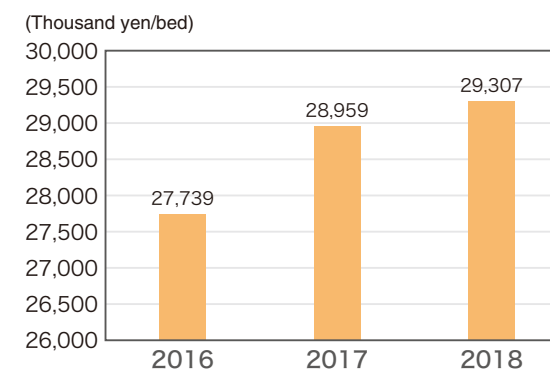
\*Management expense grants  
Includes management expense grants and non-subsidy revenue such as other miscellaneous revenue



Medical Service Indicators

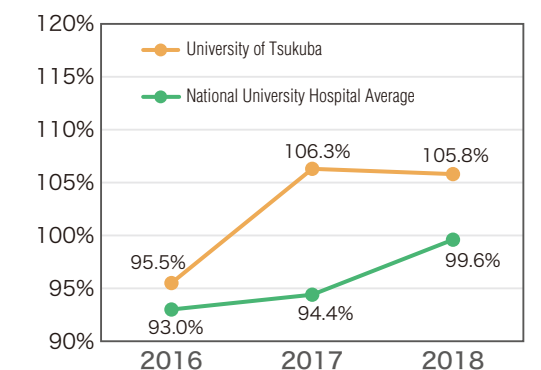
Changes in Hospital Bed Income (University Hospital income (hospitalization) ÷ number of beds)

Income is increasing annually due to an increase in the number of surgical operations, reduction in the number of days of hospital stay, and effective use of hospital beds. Providing advanced and efficient medical care, the University Hospital has been ranked the No.1 national university hospital in the country for the past three consecutive years.



Changes in Asset Turnover (Ordinary Income ÷ Assets)

Asset turnover is increasing due to early stage investment for the further strengthening of hospital functions in the past two years (renewal of and increase in medical equipment, etc.). The asset turnover for the past three years has exceeded the average for national university hospitals.





Financial Conditions

Expenses in the affiliated schools segment for fiscal 2018 were 7.2 billion yen, a year-on-year increase of approximately 200 million yen.

A look at the breakdown of financial resources for affiliated school-related expenses shows that management expense grants account for 96% of financial resources.

A look at the breakdown of expenses of the affiliated school-related expenses shows that personnel expenses account for 85% of expenses. These include expenses for a large number of teachers who provide education and guidance for infants, children and junior high and high school students. Furthermore, because the affiliated schools engage in research and development as

school centers that play a role as leaders in education nationally and locally and because the university has several special support schools that no other university has, securing and investing in the development of outstanding teachers is essential.

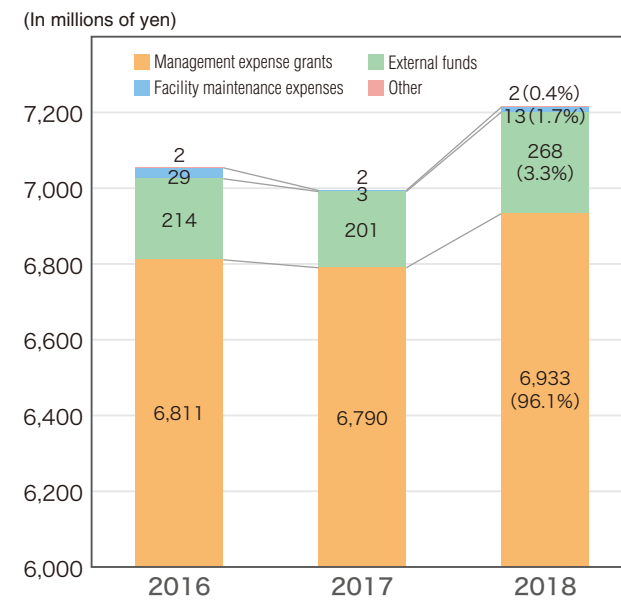
Furthermore, property expenses account for 13% of expenses, and the breakdown of property expenses shows that compensation/consignment/commissions account for 28% of property expenses, comprised mainly of consignment expenses required for the management and maintenance of 11 school campuses.

To further enhance education and research activities at affiliated schools, it is necessary to diversify financial resources including increasing the receipt of donations.

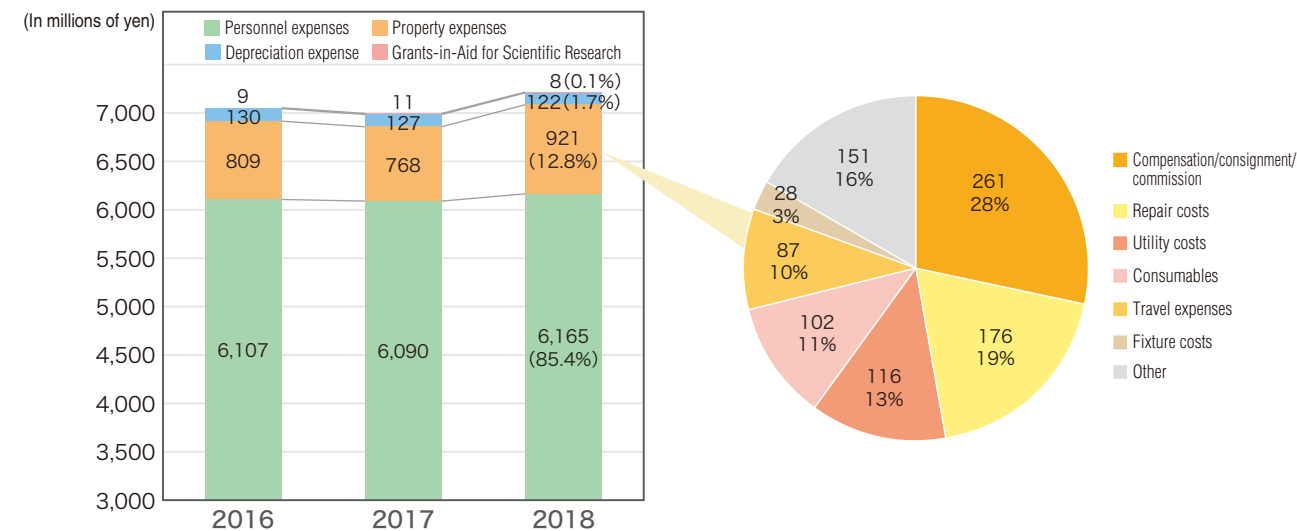
Breakdown of Financial Resources

Resource Classification	AY2016	AY2017	AY2018
Management expense grants	6,811	6,790	6,933
External funds	214	201	268
Donations	145	117	148
Sponsored operations	59	70	110
Subsidies	1	1	1
Grants-in-Aid for Scientific Research	9	13	8
Facility maintenance expenses	29	3	13
Other	2	2	2
<b>Total</b>	<b>7,055</b>	<b>6,995</b>	<b>7,215</b>

\*Management expense grants  
Includes management expense grants and non-subsidy revenue such as other miscellaneous revenue



Breakdown of Expenses



Financial Conditions

Personnel expenses are comprised of compensation or salary, statutory welfare payments, and retirement benefits for teachers and staff. Personnel expenses in AY2018 were approximately 49.2 billion yen (university: 35 billion yen, hospital: 14.2 billion yen), a year-on-year increase of approximately 600 million yen.

A look at personnel expenses by segment shows that expenses in the university segment decreased by 30 million yen (excluding retirement allowances) following initiatives to review teacher and staff appointments based on the steady implementation of the personnel strategy, which is one of the measures for management

strengthening measures.

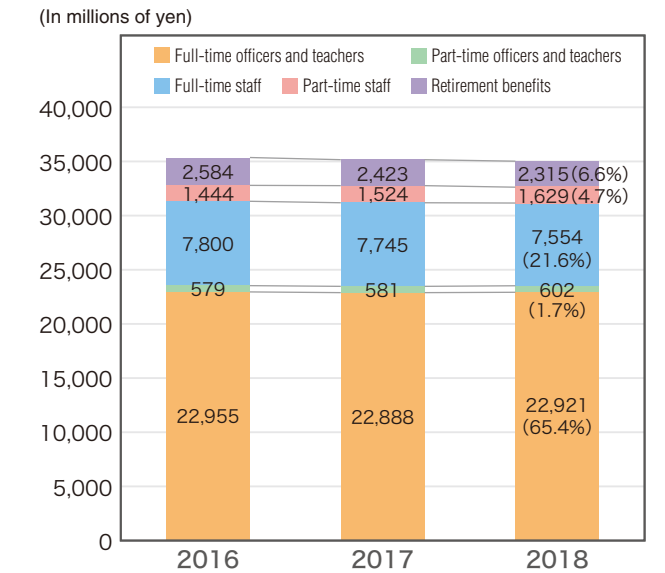
Personnel expenses in the hospital segment increased by approximately 700 million yen (excluding retirement benefits) due to an increase in the number of medical staff including doctors to further strengthen hospital functions.

To improve the quality of education, research, and medical care, it is important to make effective use of the personnel budget. However, the business environment surrounding the university is expected to increase in severity. Therefore, implementing ongoing initiatives under the personnel strategy is vital.

Changes in Personnel Expenses (University Segment)

Resource Classification	AY2016	AY2017	AY2018
Management expense grants	33,450	33,396	33,208
External funds	1,739	1,680	1,703
Donations	549	540	638
Subsidies	1,122	1,100	1,015
Indirect expenses	67	40	51
Other	172	85	110
<b>Total</b>	<b>35,361</b>	<b>35,161</b>	<b>35,021</b>

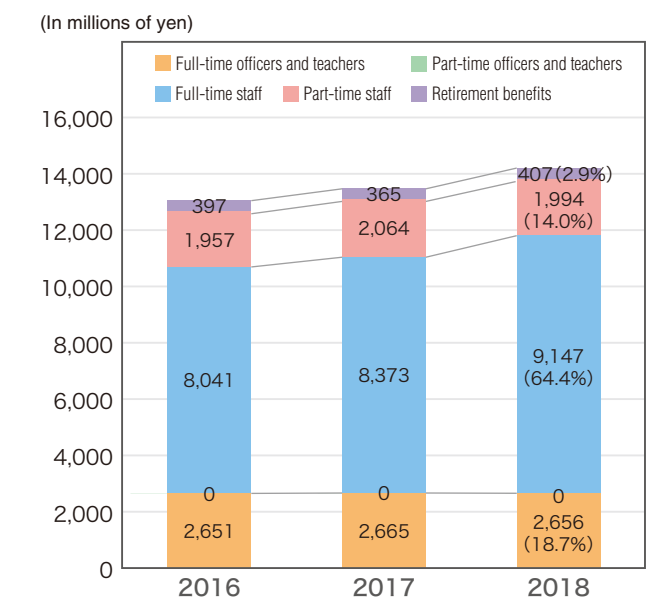
\*Management expense grants  
Includes management expense grants and non-subsidy revenue such as other miscellaneous revenue



Changes in Personnel Expenses (Hospital Segment)

Resource Classification	AY2016	AY2017	AY2018
Management expense grants	2,337	2,035	2,044
University hospital revenue	9,909	10,579	11,182
External funds	763	847	972
Donations	686	759	774
Subsidies	68	78	97
Indirect expenses	10	10	101
Other	37	7	6
<b>Total</b>	<b>13,046</b>	<b>13,467</b>	<b>14,204</b>

\*Management expense grants  
Includes management expense grants and non-subsidy revenue such as other miscellaneous revenue

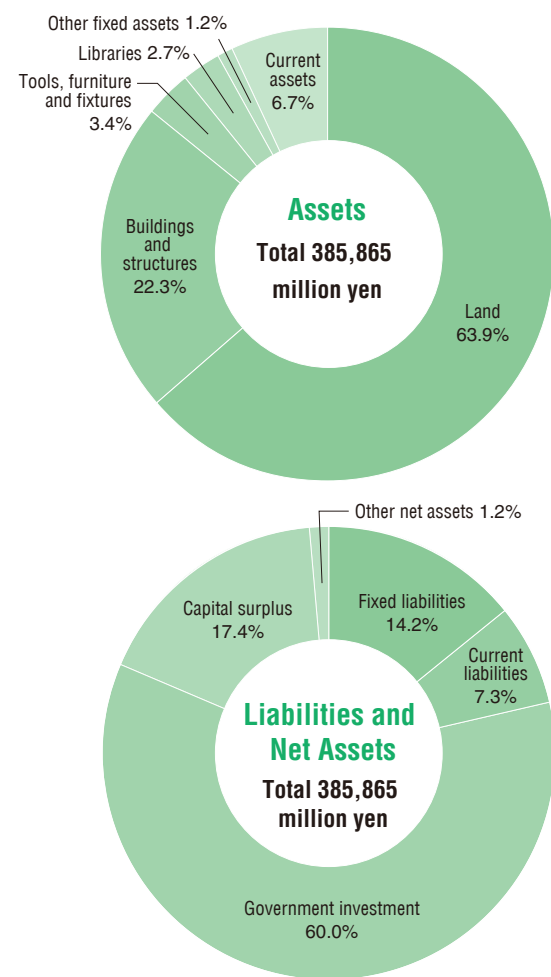






**Other Financial  
Information**





**Balance Sheet**

The balance sheet presents financial conditions of a corporation on the day of settlement. The liabilities and net assets indicate the sources of procurement of funds while the assets show how the procured funds have been managed.

**Assets:** Fixed assets such as property and buildings account for the majority of these.

**Liabilities:** Borrowings and PFI liabilities account for 37% of liabilities but efforts are made to achieve stable fiscal management through the systematic repayment of funds.

**Net assets:** Net assets account for 78% of all liabilities and net assets, and government investment accounts for 77% of these.

(In millions of yen)

Item	AY2017	AY2018	Change
<b>Assets</b>	<b>386,089</b>	<b>385,865</b>	<b>▲ 224</b>
<b>Main Items</b>			
Land	246,463	246,463	–
Buildings	89,546	85,909	▲ 3,638
Tools, furniture and fixtures	10,959	12,940	1,981
Books	10,237	10,295	57
Construction in progress	642	179	▲ 463
Investment in securities	2,701	6,518	3,817
Cash and deposits	16,983	14,352	▲ 2,631
Accounts receivable	6,185	6,740	556
<b>Liabilities</b>	<b>84,750</b>	<b>82,695</b>	<b>▲ 2,055</b>
<b>Main Items</b>			
Per contra liabilities for property acquisition	2,098	1,740	▲ 358
Borrowings	11,415	7,886	▲ 3,529
Lease liabilities	3,242	5,123	1,881
PFI liabilities	24,330	22,501	▲ 1,829
Donation liabilities	4,401	5,207	806
Sponsored research/sponsored operations liabilities	1,577	1,737	160
Deposits received	1,316	1,450	134
Contra-accounts for assets	25,920	25,217	▲ 703
Accounts payable	8,873	10,110	1,237
<b>Net Assets</b>	<b>301,339</b>	<b>303,170</b>	<b>1,831</b>
<b>Main Items</b>			
Government investment	231,333	231,333	–
Capital surplus	65,515	67,109	1,595
Reserve funds carried forward from previous Mid-term Plan period	2,557	2,444	▲ 112
Reserve funds	863	1,329	467
Unappropriated retained earnings at the end of the term (or undisposed loss)	1,072	953	▲ 119

**Total assets are 385,865 million yen (year-on-year decrease of 224)**

Tools, furniture and fixtures assets increased due to the commencement of leases for medical information systems in fiscal 2018, but the overall amount decreased due to progress in the depreciation of buildings and structures.

**Total liabilities were 82,695 million yen (year-on-year decrease of 2,055 million yen)**

Although the amount of donation liabilities increased due mainly to the new acceptance of endowment courses, and lease liabilities increased due mainly to the commencement of use of a medical information system, the overall amount of liabilities decreased due to steady repayment of PFI liabilities for the University Hospital and long-term loans mainly for the purchase of land.

**Total net assets were 303,170 million yen (year-on-year increase of 1,831 million yen)**

The increase was due to an increase in capital surplus due mainly to the repayment of long-term loans, and an increase (5.2%) in earned surplus mainly due to the difference between the unappropriated retained surplus posted in the previous year and unappropriated retained earnings at the end of the term.

(In millions of yen)

Item	AY2017	AY2018	Change
<b>Ordinary Expenses</b>	<b>94,143</b>	<b>96,297</b>	<b>2,154</b>
<b>Main Items</b>			
Education expenses	6,743	6,833	90
Research expenses	6,771	6,756	▲ 15
Education and research support expenses	2,193	2,313	120
Medical expenses	20,689	21,260	571
Sponsored research expenses	3,568	3,951	384
Cooperative research expenses	1,126	1,391	265
Sponsored operations expenses	1,233	1,200	▲ 34
Personnel expenses	48,628	49,226	598
General administrative expenses	2,586	2,846	260
<b>Ordinary Income</b>	<b>95,156</b>	<b>96,995</b>	<b>1,839</b>
<b>Main Items</b>			
Management expense grants income	35,333	35,478	146
Student fee income	9,681	9,605	▲ 76
University hospital income	32,475	33,226	751
Sponsored research income	4,156	4,695	538
Cooperative research income	1,253	1,587	334
Sponsored operations income	1,353	1,320	▲ 33
Subsidy income	2,320	2,244	▲ 76
Donation income	2,164	2,496	332
Reversal of asset return liability	3,408	2,997	▲ 411
Other income	2,888	3,135	247
<b>Extraordinary loss</b>	<b>70</b>	<b>48</b>	<b>▲ 23</b>
<b>Extraordinary profit</b>	<b>40</b>	<b>65</b>	<b>25</b>
<b>Reversal of reserve</b>	<b>89</b>	<b>238</b>	<b>149</b>
<b>Gross income (loss)</b>	<b>1,072</b>	<b>953</b>	<b>▲ 119</b>

\*See page 61 for the special accounting treatment of national university corporations.

**Ordinary expenses were 96,297 million yen (year-on-year increase of 2,154 million yen)**

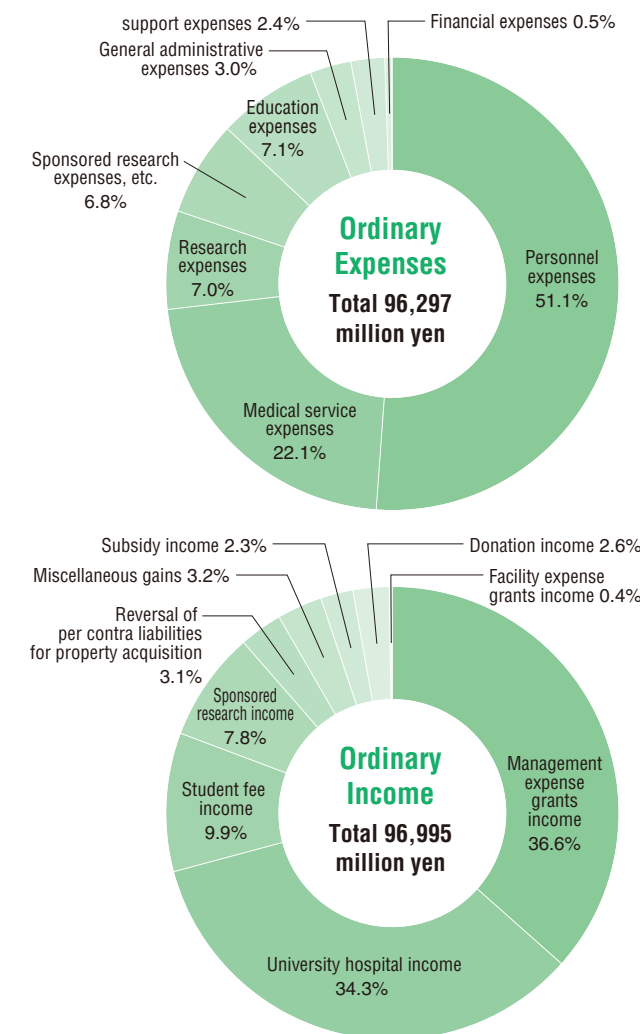
There was an increase in the overall amount due mainly to (i) an increase in medical service expenses stemming from increases in drugs and medicine and materials required to increase income through the development of Advanced Acute Medical Care, (ii) an increase in sponsored research expenses and cooperative research expenses stemming from an increase in research commissioned by government agencies and major corporations, and (iii) an increase in personnel expenses resulting from an increase in personnel to improve the work environment of medical workers.

**Ordinary income was 96,995 hundred million yen (year-on-year increase of 1,839 million yen)**

The increase was due mainly to (i) an increase in University Hospital income accompanying an increase in the number of surgical operations, (ii) increases in sponsored research income and cooperative research income resulting from an increase in sponsored and cooperative research commissions, and (iii) an increase in donation income stemming mainly from the new acceptance of endowed courses.

**Net income was 953 million yen (a decrease of 119 million yen in the same period of the previous year)**

This was due mainly to the above ordinary profit and loss conditions and the posting of (i) 48 million yen as an extraordinary loss on the retirement of fixed assets, (ii) 65 million yen as extraordinary profit for the reversal of per contra liabilities for property acquisition due to the retirement of fixed assets, and (iii) 238 million yen reduction of appropriated surplus due to the use of reserve funds carried forward from the previous Mid-term Plan Period and appropriated surplus.



**Profit and Loss Statement**

This statement shows the amount of income less expenses as profit. It indicates the operating condition of a national university corporation during a given accounting period.



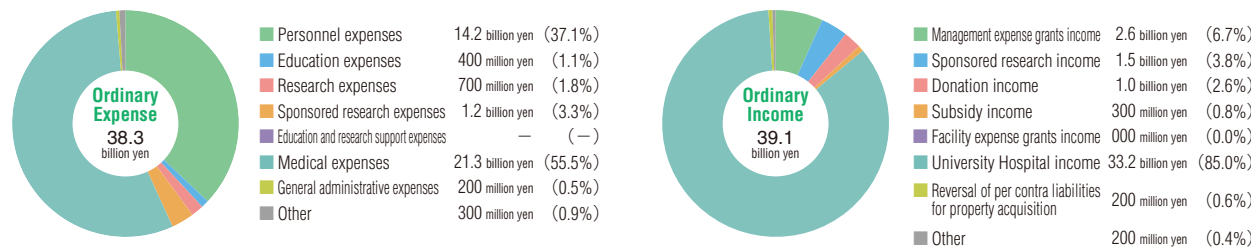
Financial Structure of Each Segment

The university consists of various organizations such as the University hospital, affiliated schools, joint use research centers such as the Center for Computational Science and the Tsukuba-Plant Innovation Center, and the financial structure varies depending on the size and main purpose of the organization (medical treatment, education, research,) etc.). Below is a graph showing the financial structure of each segment that is to be disclosed in the supplementary financial statements.

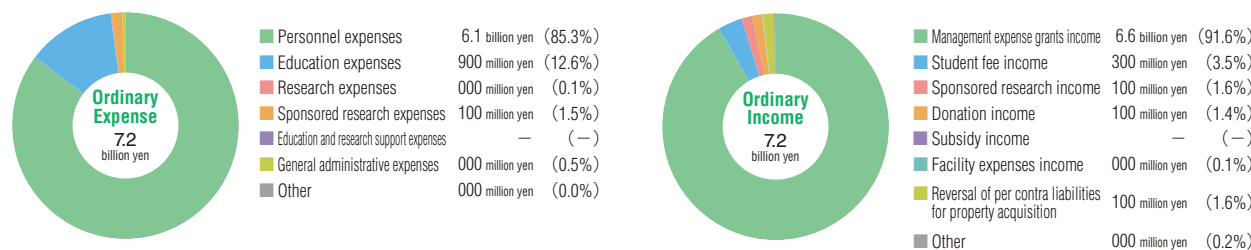
Approximately 85% of the ordinary income of the University Hospital is University Hospital income (medical service fees, etc.),

and a look at ordinary expenses shows that medical expenses and personnel expenses account for approximately 93% of these, indicating that the hospital operates mainly on medical service fees. On the other hand, management expense grant income allocated by the national government accounts for approximately 92% of the ordinary income of affiliated schools, while a look at ordinary expenses shows that personnel expenses and education expenses account for almost all of these, indicating that the affiliated schools operate mainly on management expense grants.

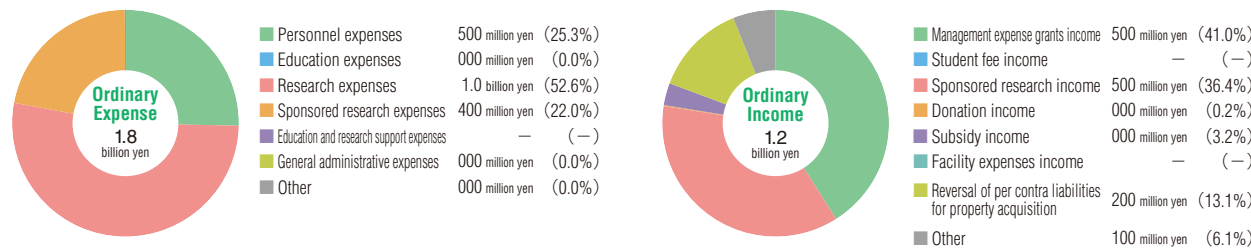
University Hospital



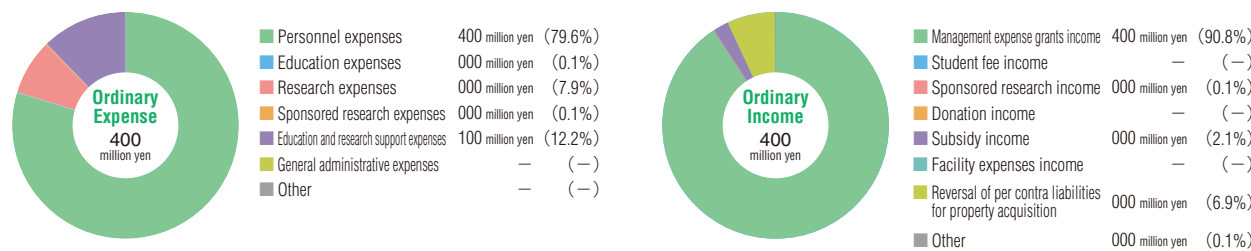
Affiliated Schools



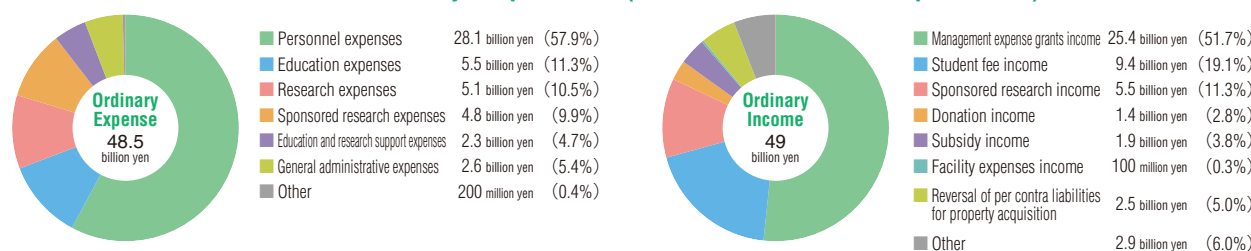
Center for Computational Sciences



Tsukuba-Plant Innovation Center



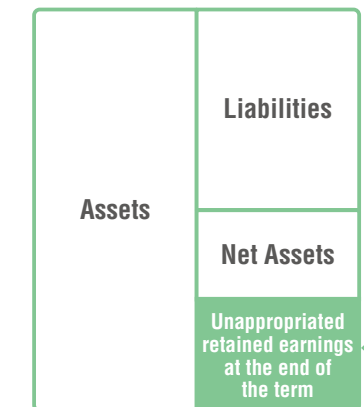
Common to University Corporations (Other than the Above Departments)



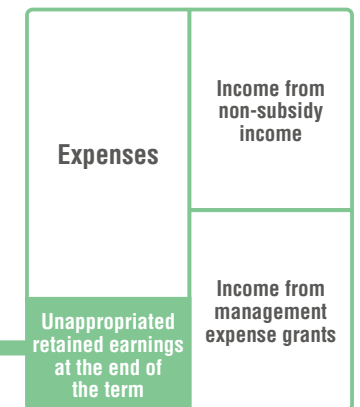
Statements Concerning Settlement

When national university corporations prepare financial statements, they follow the Accounting Standards for National University Corporations in accordance with corporate accounting. Education and research, which are the principal business activities of a university, are not profit-oriented like business activities of private sector corporations and, therefore, apply unique accounting treatment to costs incurred.

Balance Sheet (Financial Position at the End of the Term)



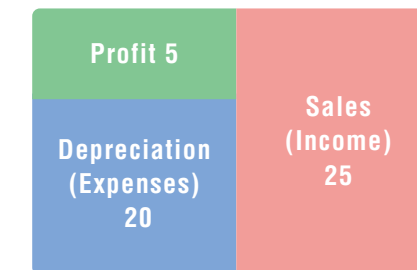
Profit and Loss Statement (Operating Conditions During the Accounting Period)



Example of Special Accounting Treatment

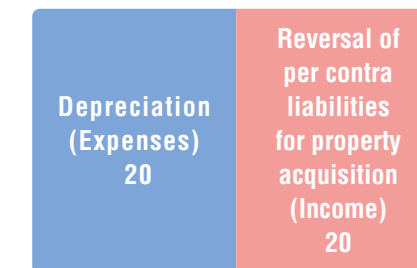
Since the purpose of a national university corporation is not to generate profit, it must accept management expense grants from the government and tuition from students as obligations, and provide education and research in return. When the university uses management expense grants and tuition to acquire facilities or equipment, there is no income commensurate with depreciation expenses. Therefore, the university records a commensurate amount of income as a "reversal of per contra liabilities for property acquisition" to balance income and expenses.

Private companies



Sales are allocated and when the sales are substantial, there is a profit. When sales are few, there is a loss.

National University Corporation



To balance profit and loss, the same amount of "per contra liabilities for property acquisition" income is recorded against expenses.



## University of Tsukuba Integrated Report

The integrated report can also be viewed at the following website:  
University of Tsukuba Integrated Report

<https://www.tsukuba.ac.jp/public/report/>



## Relevant Detailed Information

### →Financial Information:

#### AY2018 (15th Term) Financial Statements, etc.

[https://www.tsukuba.ac.jp/public/misc/teikyo\\_22.html#zaimu](https://www.tsukuba.ac.jp/public/misc/teikyo_22.html#zaimu)

The financial statements have been audited by accounting auditor KPMG AZSA LLC, the university's accounting auditor.



### →Mid-Term Goals and Mid-Term Plan

#### University of Tsukuba Third Mid-term Plans

[https://www.tsukuba.ac.jp/public/publicity\\_term.html](https://www.tsukuba.ac.jp/public/publicity_term.html)



#### Report Concerning Business Results of the University of Tsukuba

[https://www.tsukuba.ac.jp/public/publicity\\_report.html](https://www.tsukuba.ac.jp/public/publicity_report.html)



### →Tsukuba Futureship

<https://futureship.sec.tsukuba.ac.jp/>



### →Crowd Funding Business

[https://readyfor.jp/lp/university\\_of\\_tsukuba/](https://readyfor.jp/lp/university_of_tsukuba/)



## AY2019 Integrated Report

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