The University of Tokyo Designated National University Corporation Conceptual Framework (2nd Edition)

Forming a "Global Base for Knowledge Collaboration" to Contribute to the Future of Humanity and the Planet

1. Background

The University of Tokyo (UTokyo) is taking strides towards becoming a "global base for knowledge collaboration" across all disciplines and contributing to the future of humanity and the planet. The University applied for designated national university corporation status to accelerate this progress, and since being selected in 2017 has actively pursued initiatives in accordance with this project. At the outset of the fourth medium-term goal period the University undertook a review and revision of the project, taking into account the hearings and evaluations conducted by the Designated National University Corporation Subcommittee of the National University Corporation Evaluation Committee, and UTokyo Compass, which was established in 2021 as the basic policy regarding the directions and ideals the University should aspire to.

Founded in 1877 as Japan's first university, UTokyo has contributed to the formation of the modern Japanese state as an academic leader. We are guided by the principles and objectives set forth in the University of Tokyo Charter, instituted in 2003 ahead of the incorporation of Japan's national universities in 2004. The Preface to the charter affirms our commitment to serving the global public while maintaining our academic independence and autonomy, opening the University up to the world and promoting ties between the University and society, and benefitting society through research that matches to societal needs.

Since 2004, the world has become an ever more unpredictable place. Through the power of science and technology, the scale of human activity has expanded exponentially, and our daily lives have grown substantially more convenient. At the same time, environmental degradation, resource depletion and other problems have grown ever more acute. While economic and political activity becomes increasingly global, regional inequality, religious conflicts, refugee problems, and financial crises grow ever more complex. The social reforms and technological innovations that opened up possibilities for human progress and prosperity in the past have not yet fully exhibited their capacity to overcome these challenges.

This uncertain and complex situation has served to reaffirm the direction established by the University of Tokyo Charter. *The University of Tokyo: Vision 2020*, released in 2015, outlines the University's policy, adopting synergy between excellence and diversity as its basic principle, and committing to enhance research, education, collaboration with society, and University operations. We have worked to strengthen and extend the university's functions in a variety of ways including reforms to personnel systems such as the expansion of stable employment through changes to the system for employment of young faculty members, education reforms through initiatives including the World-leading

Innovative Graduate Study Program (WINGS), promotion of large-scale joint research under inter-organizational industry-university collaboration, and financial reforms such as improving the transparency of internal budgetary allocations and the issuance of university bonds. Building on these accomplishments, the UTokyo Compass articulated our commitment to working, as a university that serves the global public, to nurture diverse and talented individuals and to discover solutions to the global issues facing humanity, in line with objectives and action plans based on a multifaceted view from the three perspectives of "knowledge," "people," and "place," and by creating a virtuous circle among these three perspectives. The UTokyo Compass further states that it is this kind of management that the university must develop for itself to expand its scope as an academic institution, and thus charts a new course for UTokyo as an organization willing to question the possibilities of the university and to radically reimagine itself even as it tackles contemporary global issues. This is also a challenge both to the University to put its extensive creative powers to the test and to the larger society to which we belong.

Such extension and strengthening of the University's role as a public asset demands further enhancement of our operational and management base. By increasing our autonomy and engaging actively with broader society, we will propose new models for solving societal problems to build an unwavering confidence in the University. This confidence will enable development of greater sustainability and flexibility in university operations, facilitating dramatic enhancement of our research and education environments and enabling the University to fulfil its duty to contribute to the future of humanity and the planet.

2. Objectives, Priority Initiatives, and the Sustainable Development Goals

In preparing this project, deeply aware of the social mandate accorded to national universities, we reaffirmed UTokyo's resolve to contribute to the future of humanity and the planet as our core interest. To this end, the University has tackled the global challenge of developing the public good through its outstanding research capacity and diverse knowledge in the humanities, social sciences, and natural sciences. The University's faculties, graduate schools, research institutes and centers, university joint education and research institutes, interdisciplinary research institutes, national joint-use institutes, and cross-disciplinary units such as the numerous collaborative research organizations established in order to promote the creation of new fields of academic endeavor through cross-disciplinary fusion have all contributed. In the context of these activities, on this project, we quickly identified the congruence between the mission and direction of UTokyo and the Sustainable Development Goals (SDGs) adopted by the United Nations in 2015, which encompass the full range of challenges crucial to the future of humanity and the planet. As a result, ever since the initial project we have utilized the SDGs to the maximum extent possible as we plan concrete initiatives to contribute to the future of humanity and the planet. Furthermore, it is important to constantly bear in mind the impact of research outcomes on society and the environment. We will proactively fulfil our social responsibility through collaboration between our researchers from diverse fields and industry, academia, and the public and

private sectors, incorporating the requirements of Responsible Research and Innovation (RRI) sanctioned by the European Union (EU).

(1) Situation Analysis

Since its foundation, UTokyo has contributed to the world's intellectual diversity by generating original and outstanding knowledge. Measures such as publication and citation counts paint a picture of a comprehensive university boasting world-class research capacity in many fields including basic science. They also indicate that we leverage this research capacity to provide an educational environment of the highest global standard. Table 1 shows the University's basic data, Table 2 (Nature Index Annual Tables) demonstrates our excellence in basic research, and Table 3 (QS World University Ranking by Subject) demonstrates our research strengths as a comprehensive university across multiple fields. In the humanities and social sciences, the University was quick to engage with modern societal problems and constructed disciplinary frameworks through the accumulation of research outcomes that integrated diverse academic traditions in the historical and cultural context of Asia.

Moreover, the University's affiliated institutes, university joint education and research institutes, interdisciplinary research institutes, national joint-use institutes, and Joint Usage/Research Centers have engaged in world-class research activities and functioned as hubs for other universities both within and outside Japan, greatly broadening the horizons of knowledge. Two examples of research excellence at UTokyo are the Kavli Institute for the Physics and Mathematics of the Universe (Kavli IPMU) which was established in 2007, and the International Research Center for Neurointelligence (IRCN) established in 2017, both with the support of the Ministry of Education, Culture, Sports, Science and Technology's World Premier International Research Center (WPI) Initiative. Furthermore, to accelerate knowledge integration within the University, a collaborative research organizations structure was instituted in 2016 to complement existing cross-disciplinary organizations. This structure facilitates multiple units to promptly and flexibly develop research in new and unified fields across traditional disciplinary boundaries. It is being utilized in 44 institutes cumulatively and across an extremely diverse range of fields.

Table 1. Basic Data on UTokyo
(from UTokyo Guidebook 2022)

Faculties (Departments)	10 (44)	Total Number of Students	28,133	Academic Staff	3,978
Graduate Schools (Departments)	15 (89)	Undergraduate Students	13,962		
Institutes (Departments)	11 (51)	Master's Students	7,218	Administrative Staff	4,210
University Joint Education and Research Institutes	4	Professional Degree Students	830		
Interdisciplinary Research Institutes	4	Doctoral Students	6,123	Budgeted Revenue	JPY 281.8 billion
National Joint-Use Institutes	3	Number of Students Awarded Doctorates (65 years AY1957–AY2021)	39,598	Land Area	326 km²
Joint Usage/Research Centers	10			Nb.: Approx. 1/1,000 of the total area of Japan, which is 377,973 km²	

Table 2. Nature Index Annual Tables

The University of Tokyo

	2016	2017	2018	2019	2020	2021
Total	8	10	8	8	11	8
By Subject						
Physical Science	6	8	4	6	7	6
Chemistry	6	13	9	16	15	10
Earth & Environment	15	15	20	23	20	29
Life Science	25	29	34	30	49	33

The Nature Index scores research output by institution by tracking contributions to research articles in 82 prominent natural science journals
*Yellow highlight: ranked first in Japan

Source: Nature Index Annual Tables
https://www.natureindex.com/annual-tables/

Table 3. QS World University Ranking by Subject 2022

Faculty	Subject	Ranking
Arts & Humanities	Archaeology	21
	Architecture / Built Environment	17
	Art & Design	39
	Classics&Ancient History	33
	English Language & Literature	31
	History	30
	Linguistics	7
	Modern Languages	7
	Performing Arts	–
	Philosophy	51–100
	Theology, Divinity & Religious Studies	–
Engineering & Technology	Computer Science & Information Systems	45
	Engineering – Chemical	15=
	Engineering – Civil & Structural	18
	Engineering – Electrical & Electronic	25
	Engineering – Mechanical, Aeronautical & Manufacturing	20
	Engineering – Mineral & Mining	–
	Petroleum Engineering	–

Faculty	Subject	Ranking
Life Sciences & Medicine	Agriculture & Forestry	24
	Anatomy & Physiology	23
	Biological Sciences	18
	Dentistry	–
	Medicine	42
	Nursing	101–150
	Pharmacy & Pharmacology	28
	Psychology	61=
	Veterinary Science	32
Natural Sciences	Chemistry	16
	Earth & Marine Sciences	15
	Environmental Sciences	33
	Geography	19
	Materials Science	21=
	Mathematics	31
	Physics & Astronomy	10

Faculty	Subject	Ranking
Social Sciences & Management	Accounting & Finance	41=
	Anthropology	24=
	Business & Management Studies	88
	Communication & Media Studies	101–150
	Development Studies	25
	Economics & Econometrics	31=
	Education	64=
	Hospitality & Leisure Management	–
	Law	24
	Library&Information Management	–
	Politics & International Studies	35=
	Social Policy & Administration	25
	Sociology	28=
	Sports-related Subjects	–
	Statistics & Operational Research	31

Yellow highlight: ranked first in Japan.
Research excellence spans every field

Source: Compiled by the University of Tokyo based on data from the QS World University Rankings by Subject 2022

(2) University-Wide Actions

The Future Society Initiative (FSI; see Figure 1) was established as a university-wide framework under the leadership of the President following the University's selection as a Designated National University Corporation and has since been overseeing all projects designed to contribute to the future of humanity and the planet. The FSI is flexibly reviewing organizational structures to enable new developments to be addressed in a timely manner and activities carried out effectively at all stages from initial study of new programs through to implementation of finalized plans, including initiatives

in Green Transformation (GX) and quantum computing as well as other cutting-edge themes. By pursuing these initiatives on an ongoing basis, we are aiming to create an inclusive and liberated future society that is founded on the accumulation of knowledge in a variety of academic disciplines, each with its own distinctive characteristics developed and passed down across generations. Further, by fostering self-awareness of the basis for the University's existence and its social responsibilities, and by pursuing sincere dialogue with the potential to correct injustices and unreasonable disparities in the real world, we will seek to overcome divisions and impediments and generate academic knowledge toward the realization of a better future society, as well as initiating a wide range of collaborations with society. Actively developing these actions will see Japan take the lead in major advances benefitting humanity.
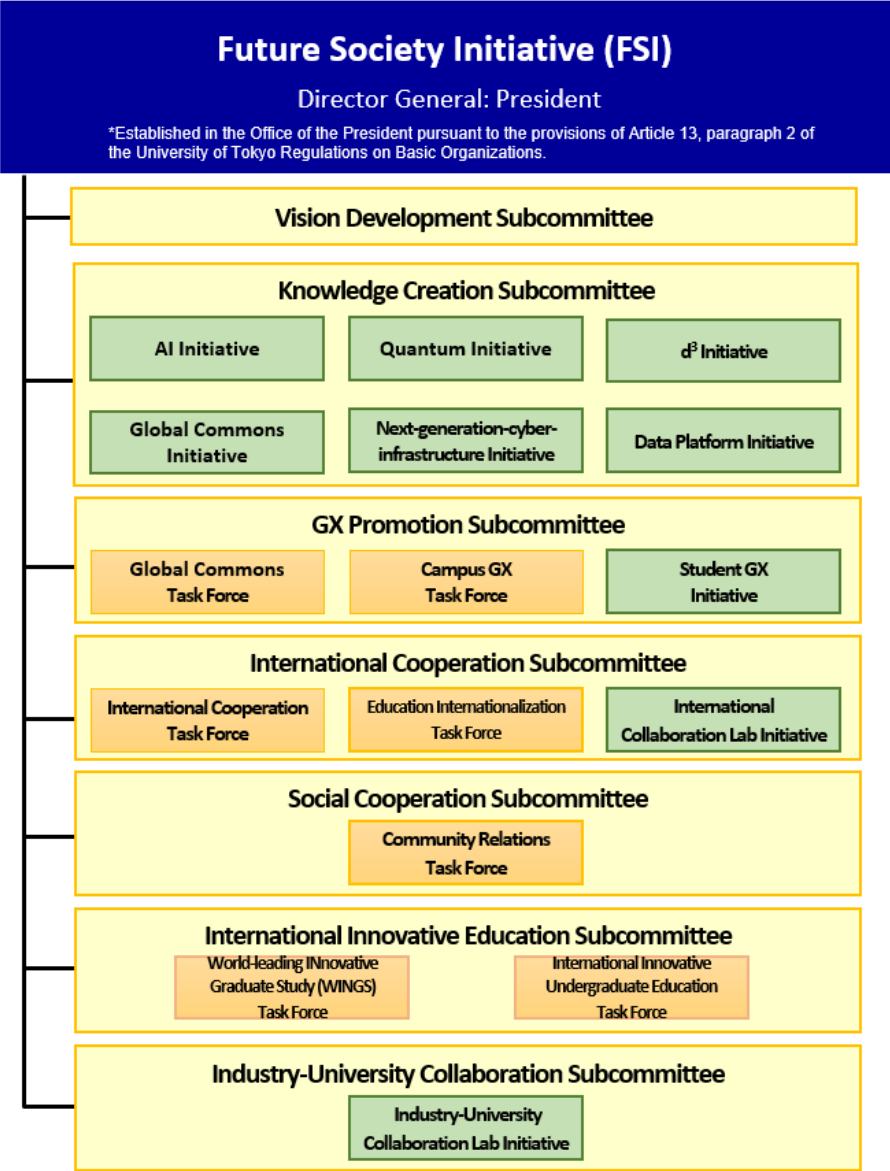

Figure 1. Future Society Initiative (as of August 2022)

(3) Objectives in Priority Areas

While referring to the SDGs and to promote healthy life, a sustainable environment, and eradication of inequality, this project initially addressed the priority areas of (1) health and medical care, (2) energy, resource circulation, and climate change, and (3) economic inequality and gender equality. As well as advancing initiatives toward the resolution of problems facing Japan and the world in these areas, the University has been accelerating efforts to enhance and create centers of global research excellence and to generate new knowledge through interdisciplinary integration.

Further progress is being made toward these objectives. For example, the University of Tokyo Sports Science Initiative (UTSSI), indicated in the initial project was reorganized in 2020 into a collaborative research organization that utilizes digital technologies, brings researchers from a variety of different specializations together under the banner of sports, and seeks to foster even greater diversity. Moreover, in 2020 we established the Center for Global Commons (CGC) within the Institute for Future Initiatives, which positions the planet as "global commons" shared by all humankind and is working to formulate a common international knowledge framework for the responsible management thereof (Global Commons Stewardship (GCS)). The CGC is engaged in a variety of activities toward the establishment of GCS, such as developing GCS indicators for quantitative evaluation of the degree of environmental load placed on the global commons by each country and, in 2021, led the establishment of the ETI-CGC, an industry-academia collaborative platform that sets out Japan's pathway to decarbonization.

Building on these achievements, in reviewing our project we have set three new priority areas that cut across all of our various initiatives – 1) Green Transformation (GX), 2) Digital Transformation (DX), and 3) Diversity & Inclusion (D&I) – and will tackle complex, global-level problems confronting the contemporary world. We will strive to forge a new future by creating a mutual link of dialogue and confidence on research, education, and cocreation with society.

In the area of GX, we will seek to establish GCS with CGC playing a central role, as well as involving various spheres of wider society in activities in ETI-CGC and elsewhere to achieve decarbonization (net zero greenhouse gas emissions), which is an essential element of GCS. At the same time, we will advance our efforts to halve UTokyo's own carbon dioxide net emissions by the 2030 academic year (AY) compared to AY2006.

For DX, towards the creation of a data-driven society, we will promote advanced initiatives in data utilization both within and beyond the university, and disseminate them throughout society.

Regarding D&I, we will establish a Center for Diversity Promotion (tentative title) to generate both academic and practical knowledge in synchronization with international research in areas including gender, multicultural coexistence, social inclusion, and disability support. The Center will disseminate the findings of this research in books, public symposiums and the like, contributing both

to their application within UTokyo and positive change throughout Japanese society.

We will recruit a diverse range of talented researchers from Japan and abroad while maintaining an emphasis on gender balance and inclusivity, employing women, non-Japanese nationals, and people with disabilities in order to promote the creation of new academic knowledge through dialogue among researchers with differing perspectives. Another initiative is the establishment of the Inclusive Campus Promotion Initiative (tentative title), which will progressively integrate related units currently spread across the university organization and expedite improvement in diversity and inclusion. We will explore ways to develop forums for free exchange among all members of the UTokyo community, regardless of differences such as nationality, culture, gender, and ability.

(4) Benchmarks

The FSI has been acting as a hub directing and promoting the great diversity of research and education that is the hallmark of a comprehensive university, addressing problems in the initial priority areas identified in light of the SDGs and the University's goals.

To confirm the progress of initiatives and achievement of objectives, and an ongoing review of the positioning of UTokyo as a global institution, we will undertake benchmarking based on the advice of the Global Navigation Board comprising prominent individuals from around the world. Benchmarking will be undertaken against leading universities overseas (University of California, Berkeley, University of Cambridge, Harvard University, Peking University, Seoul National University, and National University of Singapore, etc.).

Benchmarking indicators will be employed across the three dimensions of organization, problem-solving initiatives, and partnerships: (1) organizational development to enhance visibility and international dissemination of initiatives; (2) outcomes of action on specific issues, and (3) outcomes of external liaison activities. These benchmarking indicators will be used to monitor progress toward stated objectives for AY2030, the year by which the SDGs are to be achieved (see project roadmap in Figure 2).

Future Society Initiative

Oversee and promote the University's diverse research and education from a university-wide perspective

Priority areas that will serve as crossroads for various initiatives
(1) Green Transformation (GX)   (2) Digital Transformation (DX)   (3) Diversity & Inclusion (D&I)
Creation and social application of knowledge, development of human resources with a problem-solving mindset

	2017–2021 Achievements	2022– Benchmarks	2030 Future
Developing and Securing Talent	(1) Launched the Go Global Gateway program (GGG) and the World-leading Innovative Graduate Study Program (WINGS) (2) Advanced the stable employment of young researchers (created 423 posts by own efforts (cumulative total through FY 2021)) (3) Established flexible personnel management (cross-appointment system, split-appointment system, annual salary, etc.)	(1) Strengthen undergraduate education that transcends the barriers between the humanities and sciences, make graduate education even more diverse, multi-track, and international. Increase the international mobility of students by expanding inbound and outbound short-term and ultra-short-term study abroad programs (2) Recruit talented early-career researchers, enhance research and career support for early-career researchers, cultivate the international capabilities of early-career researchers, and promote researcher diversity to drive the creation of new knowledge	**Contribute to the future of humanity and the planet** SUSTAINABLE DEVELOPMENT GOALS 2030 Agenda for Sustainable Development Knowledge-Intensive Society Super Smart Society
Reinforcing Research Capabilities	(1) Strengthened inter-disciplinary cooperation through Collaborative Research Organizations (2) Promoted joint research projects at research centers for industry-academia-government-private partnerships, started mdx a platform for the data-driven future (3) Held the "Tokyo Forum" regularly	(1) Promote cross-disciplinary collaborations that make use of insights accumulated in the humanities, social sciences, and natural sciences (2) Develop data utilization platforms that contribute to the resolution of problems in society (3) Formulate a comprehensive international strategy to contribute to the resolution of global-scale problems, build international collaborative research centers of excellence outside Japan	
Relations with Society	(1) Promoted comprehensive industry-academia collaboration encompassing everything from entrepreneurship support to human resource development (2) Launched uTIE (University, Tokyo, Innovation, Entrepreneurship) memberships (3) Promoted Field Study Policy Collaboration Program (4) Provided practical recurrent education for working adults (established UTokyo Extension Co.)	(1) Strengthen systems for advancing co-creation with industry, promote strategic, frontier research fields contributing to green transformation and digital transformation and interdivisional co-creation with industry through interdisciplinary integration of these fields (2) Raise UTokyo's next-generation startup ecosystem to the world standard, and establish a new fund to strengthen our support for startups (3) Create and foster new bidirectional recurrent education programs (4) Expand donations and UTokyo Foundation activities as well as activities for co-creation with industry and industry-academia partnerships by strengthening communications	
Enhancing University Operations and Management	(1) Established a highly flexible financial resource far in excess of JPY 10 billion through a diverse financial resource establishment strategy (2) Issued UTokyo FSI Bonds (3) Introduced a multiple-track career path, developed alliances with neighboring universities to promote staff mobility and development, and introduced a URA certification system	(1) Establish a model of management specific to universities—a new university model (2) Develop more efficient and sophisticated administrative functions, expand educational opportunities for administrative staff and build systems that empower highly specialized staff, develop personnel systems that enable diverse work styles, and cultivate corporate management personnel	

Figure 2. Road Map for Basic Concepts

3   Achievements to Date and Initiatives Going Forward

Progress to date and future plans and objectives on actions in education, research, and collaboration with society, and actions reinforcing the operational and management capabilities to support this project are outlined below.

3.1   Developing and Securing Talent

(1)   Comprehensive Reform of Undergraduate Education

Achievements

Undergraduate education reform to promote proactive study includes reforming first year education, expanding ability-based classes, reinforcing liberal arts components throughout the bachelor degree programs, and implementing active-learning and small-class teaching. An example is the new courses in Advanced Science, Advanced Humanities and Social Sciences, and Advanced Integrated Arts and

Sciences being offered progressively since 2019. Designed for first- and second-year students in the College of Arts and Sciences, these are small-group interactive classes that use practical exercises and debating to explore advanced topics such as cutting-edge findings in emerging fields of research, thus fostering highly talented and motivated students.

Future Actions and Goals

In conjunction with the discussion and formulation of a long-term academic vision, we will strengthen undergraduate education that transcends the barriers between the humanities and sciences, including PEAK (English-medium programs in the College of Arts and Sciences). We will also enhance advanced education aligned with disciplinary characteristics, and education on ELSI in leading-edge science and technology. We will also strengthen liberal arts education in the Senior Division and Graduate Schools as well as interdivisional education programs, providing opportunities for students to sustain and advance their interests and learning in other fields while pursuing specialized education and research in the later years of their undergraduate studies. We will develop and deploy the UTokyo Campus Management System (UTokyo One), a highly personalizable learning support system, to collect data on each individual student's achievements and outcomes in learning and other activities, render it in visible form, and establish educational support tools that students can take the initiative to utilize for themselves. Through this process, we will also seek to build a cyclical approach to improving education.

(2) Comprehensive Reform of Graduate Education

Achievements

We have established the World-leading Innovative Graduate Study Program (WINGS), an interdepartmental combined Master's-doctoral curriculum equipped with quality assurance mechanisms such as qualifying examinations and stricter thesis defenses. A total of 20 WINGS programs are now in operation, involving 15 graduate schools, 10 affiliated institutes, and 13 other internal organizations. The Fostering Advanced Human Resources to Lead Green Transformation (GX) project (SPRING GX) has also been launched and 600 project participants selected from among the doctoral students (including those in four-year doctoral programs) university-wide. All academic disciplines that pertain to human activity have a role to play in the advancement of GX, and the SPRING GX project is especially promoting collaboration between professionals in the humanities and social sciences and professionals in science and technology. By offering programs and providing financial assistance for the purpose of cultivating doctoral talent, the project also helps to strengthen our financial aid for students in doctoral programs centered on GX.

Future Actions and Goals

In order to raise the academic level of graduate students who will become the academic leaders of the future, we will make graduate education even more diverse, multi-track, and international, and promote self-directed, creative research by graduate students. We will fully establish WINGS and prepare opportunities for outstanding graduate students to pursue activities outside Japan and in

industrial settings. We will implement cross-graduate-school, cross-disciplinary and interdisciplinary education programs that build on the achievements of programs such as WINGS, as well as SPRING GX. Through these programs, and utilizing the functions of our distinctive research institutes, we will foster individuals equipped with both deep specialist expertise and broad, cross-disciplinary vision to drive the creation of new academic endeavors and scientific knowledge. Specifically, we will have at least 350 students completing cross-disciplinary education programs.

Also, to advance the cultivation of high-level doctoral talents, we will recruit a greater diversity of candidates with high academic abilities and research proficiency, increasing the overall number of graduate school applicants including working adults and non-Japanese nationals, as well as ensuring that at least 30% of UTokyo Master's students continue on to doctoral programs. To this end, we will enhance the financial support offered to doctoral students, improve recruitment practices, and clarify career paths tailored to a diverse range of candidates for admission. We will raise the proportion of doctoral students receiving financial support to 50% at an early stage.

(3) Nurture an International Outlook

Achievements
In AY2018 we launched the Go Global Gateway, an initiative designed to systematize international education programs, further invigorate international exchange activity, and foster all students' capacity to 'Go Global' (live and work together with diverse people around the world).

Future Actions and Goals
The Division for Global Campus Initiatives has thus far planned and implemented university-wide short-term outbound and inbound study abroad programs and provided support for international students and UTokyo students studying abroad. We will restructure this Division to create an organization that also offers classes taught in languages other than Japanese that equip students with the practical knowledge and capacity for dialogue required of globally capable individuals, as well as support the operation of classes taught in languages other than Japanese within each undergraduate faculty. We will also bolster systems and expand courses in order to address the demand for education in Japanese as a second language.

Regarding Go Global Gateway (GGG), by systematizing the GGG program, we will aim to have all undergraduate students registered for it and have 30% of students obtain GGG certification by the time they graduate. We will expand inbound and outbound short-term and ultra-short-term study abroad programs in order to increase the international mobility of students. To achieve this, we will enhance our various international exchange programs including USTEP (University-wide Student Exchange Program), the global leadership program GLP-GEfIL, the ultra-short-term inbound mobility program UTokyo GUC (Global Unit Courses), ultra-short-term outbound mobility programs, and international experiential activities. Ultimately, we will aim to increase outbound students to 1.5 times the number in AY2019 and inbound students to twice the 2019 number, including participants

in online programs.

(4) Supporting Young Researchers

Achievements

We have pursued greater employment security for young researchers by encouraging individual the faculties and graduate schools, etc. of the university to make proactive use of personnel systems that enable the use of diverse funding sources leveraging the University's economies of scale, including UTokyo Excellent Young Researcher Program and the department-funded hiring and employment mechanism for tenured faculty. We thereby attained our target of securing 300 young researcher positions by AY2020, and as of AY2021 we had created a cumulative total of 423 positions through our own efforts.

Future Actions and Goals

We will encourage the faculties and graduate schools, etc. of the university to consider adopting tenure-track systems and strengthen support and mentoring for newly recruited young researchers and faculty members. We will attract young talents through international open application processes and nurture outstanding young researchers, including by making appropriate provision for various life events. Our medium- to long-term objective will be to have at least 1,200 non-fixed-term faculty members aged under 40 years.

We will furnish attractive environments for promising young researchers from across the world to gather and pursue their research freely and without interruption. We will enhance systems for parenting leave and assistance to return to work, and develop advanced facilities for shared use. We will also support the faculties and graduate schools, etc. of the university in establishing writing centers and consulting centers for statistics, measurement, computing, programming, and the like, and deploy these across the whole university. In disciplines that use research lab systems, we will encourage outstanding early-career researchers to take up roles as heads of their own research labs.

We will support young researchers in their international activities. Using agreements with leading institutions outside Japan, we will further stimulate the free and flexible mobility of young researchers. We will establish a "junior sabbatical" system requiring overseas travel. We will continue operating the Global Activity Support Program for Young Researchers as a UTokyo initiative to support medium- to long-term fieldwork overseas, the hosting of international conferences, and the like. We will also encourage researchers seeking to pursue careers outside Japan.

(5) Securing Excellent Research Staff

Achievements

We have made active use of flexible personnel systems including the Cross-Appointment System, Split Appointment System, The University of Tokyo University Professor System, and annual salary

systems. We have also clarified that it is possible to set salary levels in a significantly flexible and competitive manner, approved the setting of annual salaries in excess of the maximum salary grade stipulated in the regulations, and advanced other steps toward the recruitment of outstanding, internationally-competitive talents from Japan and abroad.

Future Actions and Goals

To promote inflow of internationally competitive researchers from foreign institutions, through flexible and competitive arrangements for salaries, for example, allowing payment from multiple sources such as Management Expenses Grants and external funds, we will further advance our efforts to attract leading talents from home and abroad.

(6) Diversity & Inclusion (D&I)

Future Actions and Goals

We will recruit a diverse range of outstanding research talents from both within Japan and internationally with an emphasis on gender balance and inclusivity, and thereby promote the creation of new academic knowledge through dialogue among researchers with differing perspectives. Specifically, we will use the provision of incentives to the faculties and graduate schools, etc., the allocation of positions from University headquarters, personnel cost assistance schemes (acceleration programs), and the like to enable the employment of more women, non-Japanese nationals, and people with disabilities as researchers. We will ensure that at least 30% of newly appointed researchers are women.

(7) Benchmarks

The following are set as benchmark indices for fostering and securing human resources: (1) the percentage of graduate students who receive financial support over a threshold amount; (2) the number of faculty under 40 years of age not employed in specified fixed-term positions; (3) as a measure of international recruitment, the number of graduate students enrolled from abroad and the number of international researchers; and (4) as a measure of diversity & inclusion, the ratio of women among the University's faculty members (including Distinguished Professors and project academic staff among the fixed-term project academic and administrative staff).

3.2   Reinforcing Research Capacity

(1) Promoting Research

Achievements

We have strengthened collaboration across different research fields through the establishment to date of cumulatively 44 collaborative research organizations, in which multiple units conduct research collaboratively over a certain period in order to promote the creation of new fields of academic

endeavor through cross-disciplinary fusion. Moreover, taking into account the University's history and characteristics, we have steadily pursued the strengthening and expansion of bases that function to connect various forms of knowledge within Asia, and enhancement of their international reputation, through initiatives such as the establishment of the UTokyo Center for Contemporary Japanese Studies and the opening of the Asian Research Library.

Future Actions and Goals

The University will continue to drive basic research in the humanities, social sciences, and natural sciences in Japan, achieving original and pioneering research results and disseminating them internationally. With the involvement of University Research Administrators (URA), we will develop systems for smooth implementation of academic research surveys and analysis, planning and proposal, and administration and management, to support the procurement of foundational research funding for individual researchers. In order to equip joint-use facilities with highly versatile, cutting-edge infrastructure and develop environments for their utilization, we will share models of leading-edge practice within the university and deploy them across the whole university. We will promote the utilization of academic materials by strengthening library information provision systems and academic resource archiving, as well as the capability to store, register, manage, and facilitate analysis of large volumes of data acquired by the University Museum and research institutes and generated by IoT, satellite observations, and the like.

We will also promote cross-disciplinary collaborations that make use of insights accumulated in the humanities, social sciences, and natural sciences to address the various problems arising from progress in science and technology and changes in society. For this purpose, we will apply humanities and social science perspectives to the evaluation, gathering, and preservation of internal and external academic assets in the natural sciences, and vice versa. We will advance the collection, assessment, preservation, indexing, digital archiving and online publication, and exhibition of academic assets to aid collaboration across the humanities, social sciences, and natural sciences, developing hubs for collaborative cross-disciplinary research. We will support groundbreaking disciplinary practices in the organization of data and historical and other materials and the development of resource collections and databases for them, and especially in the pursuit and presentation of research that utilizes these materials from interdisciplinary perspectives.

(2) Knowledge-Intensive Industrial Clusters

Achievements

We have advanced joint research projects in hubs for research collaboration among industry, academia, public and private sector partners in the Tsukuba-Kashiwa-Hongo Innovation Corridor, as well as launching operation of mdx: a platform for the data-driven future, on the Kashiwa II Campus which is designed to support research, industry-academia-government partnerships, and social applications related to data utilization on a national scale.

Future Actions and Goals

Toward the creation of a data-driven society, we will promote initiatives in data utilization both within and beyond the university, and disseminate them throughout society. In doing so we will also give consideration to the potential negative effects of digital society, such as tyranny of data, social fragmentation, and exacerbation of CO_2 emissions. We will utilize the Science Information Network SINET, the mdx, and other information and communications infrastructure to generate new methods for collecting, analyzing, and utilizing data related to healthcare, weather, society, materials, and the like. We will also develop data utilization platforms that contribute to the resolution of problems in society, such as the use of simulations to support natural disaster prediction and mitigation strategies. By accelerating this DX, we will render visible the effects of our initiatives in research, education, and carbon reduction, and achieve data-driven efficiency gains. We will also use strengthening programs to accelerate faculty, administrative staff, and students' contributions to society through DX, as well as advance this transformation in co-creative activities with communities within and outside Japan, including the effective use of cyberspace and AI technologies along with evidence-based information disclosure.

(3) Reinforcing International Networks

Achievements

We have implemented the UTokyo Global Activity Support Program for Young Researchers, which is designed to vitalize the University's research profile and strengthen international collaboration and dissemination. In order to ensure that the internationalization of young researchers was not brought to a halt by the COVID-19 pandemic, we launched a new UTokyo Global Online Activity Support Program for Young Researchers in AY2020, which assists young researchers in building their international networks and strengthening their capacity for international dissemination. We have actively advanced other initiatives in international collaboration as well, including the establishment of Tokyo College which invites both leading researchers with global activity profiles and highly promising young researchers to pursue cross-disciplinary collaboration and exchange, the establishment of the Center for Global Commons that is building an international scholarly framework for the responsible management of the global commons that are the shared property of all humankind, and regular hosting of the Tokyo Forum, a series of international symposiums involving discussion and proposal of approaches to addressing major challenges in collaboration with leaders from various countries across the world.

Future Actions and Goals

We will promote the activities of leading world-class research hubs such as the University of Tokyo Institutes for Advanced Study—Kavli IPMU, IRCN, and Tokyo College—and turn IRCN and the other organizations into permanent entities. We will also take the initiative to attract visiting researchers and young researchers from institutions outside Japan. One specific objective is to welcome 600 researchers from institutions outside Japan to the above-mentioned three hubs each year.

We will pursue research and education activities that leverage the strengths and characteristics of our international joint use and joint research hubs and affiliated institutes. We will contribute to the construction of new knowledge through the joint use of a wide variety of facilities and equipment, including the TAO infrared-optimized telescope, the KAGRA gravitational wave detector, Integrative Medical Genomics, High Magnetic Field Science, Attosecond Laser Science and Spintronics Research Infrastructure, as well as steadily advance the Hyper-Kamiokande project.

We will formulate a comprehensive international strategy to raise UTokyo's capabilities in education and research and contribute to the resolution of global-scale problems. We will promote educational cooperation and partnerships, including through the use of online technologies, with institutions and talents beyond Japan that are known for their research excellence. We will consider ways to encourage and support the involvement of researchers affiliated with overseas institutions in examination committees for degree conferral. We will promote collaborative education programs, including double degree programs, with educational institutions outside Japan. At the same time, we will reassess our relationships with partner universities and organizations outside Japan, our various international relations projects, and overseas offices, and implement distinctive, strategic approaches to collaboration. In the Strategic Partnerships Project, we will take into account the exchange activities pursued thus far as we work to contribute to the improvement of UTokyo's capabilities in both education and research, adopting more effective and progressive approaches that leverage the respective strengths of face-to-face and online formats, including the expansion of collaborative education programs. As part of this process, we will build international collaborative research centers of excellence outside Japan that will serve as places for the internationalization of research, collaboration toward solutions to global-scale problems, and the training of young researchers.

(4) Benchmarks

Benchmark indices for reinforcing research capabilities are (1) amount of domestic and international research funding acquired for resolving global issues as a measure of the University's response to international research needs; and (2) number of non-Japanese researchers, number of international co-authored papers, and number of newly created research activity bases overseas, as measures of researchers' international activities and collaborations.

3.3 Collaboration with Society

(1) Industry-University Collaboration and the Startup Ecosystem

① **Industry-University Collaboration**
Achievements
We are making solid progress on a comprehensive program of industry-university collaboration not only on the research front but also including activities ranging from support for startups through to human resource development. The number of large-scale inter-organizational collaborative projects

has grown steadily to a total of 11 projects since AY2016. We have also implemented reorganizations of the Division of University Corporate Relations and the Administration Bureau in order to strengthen administrative structures for the promotion of industry-university collaboration.

Future Actions and Goals

We will promote co-creation with industry to yield solutions to societal problems, sharing our vision and collaborating comprehensively based on top-level inter-organizational agreements. We will train at least 20 coordinators with the expertise to evaluate and judge both the business and research facets of co-creative activities, as well as strengthen systems for advancing collaboration with industry by fostering administrative staff fully versed in the specific issues these activities address. We will generate at least JPY 20 billion annually in joint research across the university, at least 20% of which will be derived from co-creative projects with society. Especially, we will promote strategic, frontier research fields contributing to GX and DX (including quantum sciences, artificial intelligence, neuromorphic computing, semiconductors, communications infrastructure, finance, mathematics, urban design, medicine, biosciences, and materials), and interdivisional co-creation with industry through interdisciplinary integration of these fields.

② **The Startup Ecosystem**

Achievements

We use the term "ecosystem" to refer to the circulation of knowledge, intellectual property, talent, and funds across four stakeholder groups: the University itself, startups, large corporations and the like, and investors and other financiers. Activities pursued toward the enhancement of this ecosystem have led to an increase in the number of startup companies emerging from UTokyo to a cumulative total of 478 by AY2021. Further, the University is aiming to furnish a platform for university startup companies, their supporters and large corporations, providing services such as matching university startups with large corporations so as to accelerate the startups' growth and encourage the corporations to innovate. In AY2021 we launched the uTIE (University, Tokyo, Innovation, Entrepreneurship) membership system on a trial basis, and will pursue verification and improvements based on this trial toward a full-scale rollout of the system.

Future Actions and Goals

We will strategically advance co-creation with industry through initiatives including the formation of knowledge industry clusters around campus, the development of startup support systems in collaboration with overseas offices and external organizations with an eye to global markets, and the enhancement of support for fields and technologies in which UTokyo has particular strengths. In line with directions in GX and DX, we will raise UTokyo's next-generation startup ecosystem to the world standard, building systems that maximize the development potential of the ecosystem utilizing the university's own capital. A specific objective is for a cumulative total of 700 UTokyo-related startups to have been created by 2030.

We will strengthen and internationalize the networks connecting UTokyo with investors, startups, major corporations, and accelerators, and promote the productive circulation of knowledge, talent, and funds centered on UTokyo. We will also expand our networks of people both within Japan and internationally by supporting both startups and large corporations through matching services, collaborative projects, and training for intrapreneurs (in-house startup leaders) and entrepreneurs and promoting exchanges between startups and large corporations.

We will investigate options for strengthening our support for startups, such as direct investments led by UTokyo to the value of around JPY 10 billion (including LP investment [limited liability investment] and in-kind contributions). We will also consider the use of trusts and other arrangements, with the aim of establishing a new fund on the order of JPY 60 billion over the next ten years, including public sector capital.

(2) Community Relations and Return of Academic Achievements to Society

Achievements

In AY2017 we launched the Field Study Policy Collaboration Program, an educational program designed to foster leaders to pursue solutions to problems in society. Under this program to date we have partnered with a total of 15 prefectural governments on projects involving 192 undergraduate and graduate students as part of our efforts to strengthen cooperative relations with local communities. We also established UTokyo Extension Co., Ltd. in AY2018 and are sharing the top-class academic outputs generated by the university through practice-based recurrent education for companies and working adults. Moreover, in AY2020 we established UTokyo Economic Consulting Inc., which is providing private sector businesses, governmental authorities, law firms, and other clients with a variety of economic consulting services that utilize research findings.

Future Actions and Goals

For promoting community relations, we will apply the combined knowledge of UTokyo to tackle a variety of local challenges in areas including low birthrate and aging population, disaster prevention and recovery, infectious diseases in livestock, and industrial revitalization, pursuing ongoing dialogue with local governments and residents and achieving workable solutions. We will strengthen the activities of research hubs tackling issues in society such as disaster preparedness and the aging population. We will also establish new research hubs in the areas of infectious disease control and vaccine development. We will work on GX initiatives with local governments, residents, companies, and whole communities in the areas home to UTokyo's campuses and facilities, which occupy around 0.1% of Japan's total land mass. Specifically, we will collaborate with at least seven local government authorities on GX, including the provision of support for the development of decarbonization action plans. We will also disseminate models of community collaboration toward GX to serve as reference points for other universities and communities.

For recurrent education, we will build a comprehensive database of information gathered on recurrent

education programs, including those implemented by the faculties and graduate schools, etc. of the university and by members of the university community, and those operated in collaboration between UTokyo and corporate associates. We will also look into ways of making the gathered data more visible and build a portal site that provides essential information to audiences both within and outside the university. We will develop systems in order to raise the effectiveness of these programs overall.

We will support the creation and fostering of new bidirectional recurrent education programs and generate a recurrent education program ecosystem for members of the local community and working adults—including teachers in primary and secondary education—and use it as a venue for exchange that makes UTokyo more attuned to social issues. We will also utilize frameworks for co-creation with a wide variety of stakeholders to design interdisciplinary recurrent education programs based on collaboration between faculties and graduate schools, etc. of the university. This will require mechanisms enabling the provision of resources to support the implementation of recurrent education programs, including personnel, equipment, technologies, venues, funds, and know-how. Moreover, in line with the growth of online education, we will plan and deliver unique UTokyo programs that involve researchers in distant locations, including outside Japan, and provide recurrent education to a wider range of learners.

(3)   Communication Enhancements

Future Actions and Goals
We will enhance our presence as a leading university by engaging with audiences both within Japan and internationally through communication activities, hosting of public events, and collaboration with media outlets. In order to showcase our cutting-edge research capabilities, inclusive learning environments and educational attractions, we will bolster our teams responsible for producing and managing our news site UTokyo FOCUS, press releases, video content and the like, and raise our capacity to disseminate information within Japan and internationally. We will strengthen communications using events, media, digital technologies and CRM (customer relationship management) approaches.

We will consolidate and expand our alumni network in the course of developing a wider-ranging UTokyo community encompassing alumni and other associates of the university. In conjunction with these efforts, we will expand the range of events targeting alumni and the opportunities for alumni to pursue learning tailored to different age groups and goals. We will connect current students with alumni through initiatives such as career development support utilizing alumni experiences in wider society and opportunities to collaborate on university projects. We will use these activities to build a next-generation community that fuels the circulation of talents and funds. In light of the fact that overseas experience programs run by alumni based outside Japan already serve as valuable opportunities for both those alumni and current students, we will expand our international alumni organizations and support collaboration among international alumni themselves.

(4) Benchmarks

Benchmark indices for collaboration with society, from the perspective of contributing to new systemic reforms, are (1) as measures of industry-university relations, the number of large-scale inter-organizational collaborative projects and the number of start-up companies and their revenues; and (2) as a measure of academic outputs fed back into society, the creation of new recurrent education programs and the number of people participating them.

3.4 Enhancing University Operations and Management

(1) Strengthening the University's Financial Base

Achievements

In order to secure the foundations for stable and autonomous operations, we have pursued a variety of financial resource building strategies and developed mechanisms for the circulation of capital through financial resource diversification, with the goal of securing financial resources with greater freedom of use totaling approximately JPY 10 billion in real terms by AY2021. Specifically, the expansion of donations revenue (including expansion of donations of valuation assets, strengthening of alumni giving programs, and creation of the FSI fund), the pursuit of industry-university collaborations (including startup-related donations, incubation facility rentals, intellectual property revenues, and indirect expense revenues), the generation of revenue through asset management, and other initiatives have enabled us to build financial resources with greater freedom of use to a level significantly exceeding the JPY 10 billion target. We have also issued the University of Tokyo FSI Bonds and pursued essential investments in areas such as the development of major cutting-edge research facilities that will sustain and bolster our international reputation and the improvement of network infrastructure.

Future Actions and Goals

We will establish a model of management specific to universities—a new university model—that expands the autonomous and sustained creative activities of all members of the university and provides a foundation for serving the global public through the pursuit of truth and the creation of knowledge based on academic freedom. For this purpose, the following actions will be carried out.

1. Manage the Division for Financial Management and conduct data-driven management
The Division for Financial Management established under the Office of the President will be responsible for tasks that include the formulation and ongoing adjustment of medium- to long-term financial management forecasts; cash flow management; quarterly managerial accounting by Strategic Business Units; setting of Objectives and Key Results (OKRs), evaluation of progress towards them, and proposals for improvement; establishment and implementation of risk management processes in financial affairs; and stakeholder management. We will conduct analysis of the financial management of the university corporation and the associated risks in light of the growing

diversity of revenue sources and to make more sound investment decisions for expansion of the university's functions. In order to support these activities, we will enhance decision-making processes by utilizing information on research, education, and social engagement performance and resource allocation accumulated through institutional research (IR).

2. Pursue legal management and risk management

We will build and strengthen university-wide systems to respond appropriately and strategically to newly emerging legal challenges, while avoiding increasing the legal risks that accompany expansion of the university's functions, including the dramatic expansion of our collaborations with partners in industry and the wider society both within Japan and across the world and the issuance of university bonds. We will also establish risk governance systems to underpin the research integrity functions essential for the advancement of co-creation with industry and international collaboration, such as management of intellectual property agreements in industry-academia partnerships, management of conflicts of interest, management of trade secrets, data-driven industry-academia collaborations, and security export control (including economic security measures).

3. Establish a Statutory Endowment (tentative title)

We will lobby the national government to institute changes necessary for the establishment of a Statutory Endowment (tentative title) system that enables universities to retain financial reserves for future investments and utilize them on the basis of management decisions formulated with a greater degree of freedom. Premised on the establishment of this new system, as a medium-term goal we will aim to establish a Statutory Endowment on the order of JPY 100 billion through proactive procurement and effective utilization of assets and funds. Under the Division for Financial Management, we will make timely and appropriate investment decisions and use the Statutory Endowment (tentative title) efficiently and effectively in alignment with changes in the environment and dialogue with wider society, as well as issue university bonds strategically and utilize them agilely.

4. Pursue liaison activities that foster empathy and dialogue with society

We will bolster our team of fundraising experts and promote effective liaison activities that foster empathy and dialogue with society, discharging our obligations of accountability and building robust relationships of trust with donors. Through these activities we will increase the value of donations and the number of collaborative activities with industry. By the end of AY 2026 we will attain a balance of JPY 20 billion in non-earmarked donations within the UTokyo Foundation.
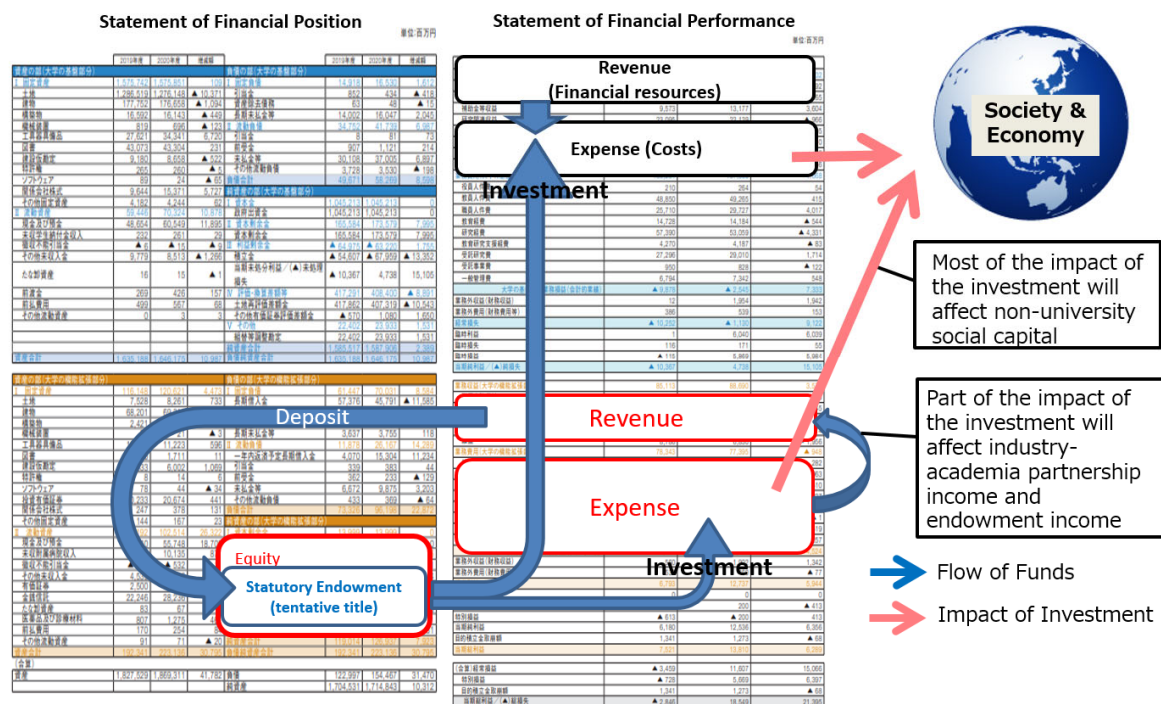
Figure 3. UTokyo's New Management Cycle

(2) Professionalization of Administrative Staff

Achievements

The introduction of a multi-track career path that respects administrative staff aptitudes and inclinations has enabled us to make appropriate personnel assignments and promotions decoupled from the traditional seniority system, while the signing of staff mobility and development alliance agreements with neighboring universities has facilitated the pursuit of staff development activities and the recruitment of talented staff in line with the increasing diversity, sophistication and specialization of university functions. Further, we have reclassified administrative staff into core, specialist, and support categories, developed staffing systems that enable diverse work styles, and secured appropriate employment conditions including greater stability for staff employed on a fixed-term basis. We have advanced the system for certification of administrative staff as URAs, who are now putting their expertise to work in a variety of research-related workplaces while sharing their knowledge and collaborating in networks beyond their own units of affiliation.

Future Actions and Goals

1. Develop more efficient and sophisticated administrative functions, expand educational opportunities for administrative staff and build systems that empower highly specialized staff

We will increase the number and capabilities of administrative and technical staff, and pursue greater efficiency through further digitalization and system enhancement in administrative functions. We will strengthen internal administrative systems for internationalization through initiatives such as raising the number of administrative staff proficient in English and providing more opportunities for staff to

undertake foreign language training. We will expand educational opportunities to enable administrative staff to acquire advanced expertise and capacity to make proposals in areas such as industry-academia-government collaborative activities, promotion of DX and provision of support for faculty and students who are not proficient in Japanese. Moreover, we will develop an administrative personnel system that properly evaluates individual abilities and performance, and consider mechanisms to enable highly specialized personnel employed in the faculties and graduate schools, etc. to contribute to the university at large.

2. Develop personnel systems that enable diverse work styles

We will promote diverse working styles and furnish environments allowing administrative staff to use their abilities to the fullest, through measures such as a new system allowing staff members to allocate up to 20% of their time to other projects (20% rule) and the establishment of work styles that combine commuting and home-based work.

3. Cultivate corporate management personnel

In order to enable the university corporation to be managed in the spirit of the University of Tokyo Charter and in accordance with the university's codes of conduct, we will strategically and systematically cultivate individuals to handle corporate management into the future.

4 Closing Remarks

UTokyo, as a Japanese national university, aspires to serve the global public and form a global base for knowledge collaboration contributing to the future of humanity and the planet. To this end, the University aims to pursue greater autonomy in our operations and management. Through tireless reform, we will create an inclusive space for research and education for all. UTokyo will realize our visions for research, education, collaboration with society, and international cooperation.