GLOBAL VISION

TOHOKU UNIVERSITY GLOBAL VISION



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Announcing Tohoku University Global Vision



Our society is facing various global challenges in the midst of socio-economic changes, including globalization, an aging population combined with a diminishing number of children, and escalated international competition fueled by the rise of emerging countries. Therefore, especially after the unprecedented devastation and nuclear accident resulting from the Great East Japan Earthquake and Tsunami, it is imperative that we seek a new alternative direction for society and identify the best path toward realizing it.

Tohoku University is a national university with a history spanning more than a century. The university's 'Research-First' tradition, 'Open-Doors' principle, and spirit of 'Practice-Oriented Research and Education' have helped to cultivate individuals with world-class talent and generate outstanding research results that have contributed to the development of a peaceful and equitable human society. These traditions reflect the endurance of our university's founding principles—our 'DNA'—which defines our values.

The 'Research-First' tradition is a crucial aspect of the identity of Tohoku University, where we emphasize a research environment that promotes a stubbornly honest search for the truth. In other words, this tradition reflects our commitment to establishing a 'World-Class University,' a goal that is realized every time university staff members take pride in their work, or nurture young talent through routine research work. Our university is passionately dedicated to accumulating such achievements in research and education.

The aim of "Practice-Oriented Research and Education" is to put innovation, in the modern sense, into practice. As a seat of learning, the university has a critical mission to disseminate the knowledge acquired by research to society at large, to guide us through the serious challenges that surround us, and to catalyze dramatic transformations in the future. As Tohoku University rises from the period of reconstruction and regeneration following the unprecedented devastation that shook the region, we find ourselves in a phase in which the true value of "Practice-Oriented Research and Education" needs to be demonstrated.

The "Open-Doors" principle reminds us of the fact that a university should welcome people with different values and backgrounds. We must continue to promote an environment that enables each student and faculty member to freely express their individuality and continue their personal and intellectual growth. It is no exaggeration that the leadership role of the President is all about developing such an environment, in order to build a community of wisdom where people gather together, learn, and create, with an open doors to the world. The Tohoku University Global Vision stems from a reaffirmation of Tohoku University's founding spirit and mission. Our Global Vision provides a roadmap that illustrates the directions our university will take during my five-year term (2013–2017), as well as the strategic focuses and major policies that will help us reach our goals by looking ahead to predicting trends and assessing the optimal way to reinforce our functions based on the university's strengths, characteristics, and social roles (i.e., its mission). I would like to explain briefly how we developed our Global Vision.

When I assumed the post of President in April 2012, I presented two goals for my six-year term: "Achieving World-Class Status and Leaping Ahead", and "Leading the Post-earthquake Restoration and Regeneration". In August 2013, the Satomi Vision was announced in order to clarify the actual path toward achieving these goals. The Satomi Vision defines a seven-part plan that represents the ideal state of the university, as well as the policies and processes necessary to attain them. However, the President's leadership alone is not enough to ensure that this happens. In addition, it is essential to integrate the potential of the advanced and diverse faculty organizations that constitute the university, as well as to promote forward-looking efforts at the university-wide level.

The purpose of the Tohoku University Global Vision is to comprehensively present the Faculty Vision, which was designed at the individual faculty level (organizational mission, organizational policies to reinforce their functions, strategic focuses, and major policies), along with the Satomi Vision, which was designed from the universitywide perspective. The Faculty's Vision introduces specific goals at the forefront of diverse education, research, and community partnership activities, based on each faculty's organizational mission. The vision also clearly states what needs to be done, now and in the future, in order to achieve these goals.

Today, proactive reform of the university is more important than ever for the development of global human resources and reinforcement of innovative practices at the university level. This need for reform is a manifestation of the strong expectations placed on university organizations by citizens and society. Tohoku University has renewed its determination to further promote the reinforcement of university functions, first by presenting this Tohoku University Global Vision to society at large, and then by implementing it effectively.

> May 2014 Susumu Satomi President of Tohoku University

Tohoku University Global Vision

Guideline for indicating our university future and aiming to proceed with these objectives as the entire university

- Compiled by our University-wide Satomi Vision and Faculty's Vision, express practical policies and actions during the five-year presidential term
 - ©Relate to the yearly plan in the 2nd Evaluation for Current Mid-Term Goals, the MEXT Execution Plan for University Reform, the 3rd Evaluation for Current Mid-Term Goals
 - ©Utilize the special expenditures which stimulate to support university administrative operations and the Presidential budget

Satomi Vision 7-Vision Plan· Strategic Focuses· Implementation Schedule

Faculty's Vision

Individual Organizational Policies·Strategic Focuses· Major Policies

Contents

Satomi Vision	4	Faculty's Vision	16
VISION 1 Create a venue where students will grow into individuals capable of flourishing in the international community.	7	 Faculties and Schools Graduate School / Faculty of Arts and Letters Graduate School / Faculty of Education Graduate School / Faculty of Education 	· 17
VISION 2 Create, in our capacity as a world-leading research center, an open environment in which excellent researchers will gather.	9	 Graduate School of Economics and Management / Faculty of Economics Graduate School / Faculty of Science Graduate School / School of Dentistry Graduate School of Pharmaceutical Sciences / Faculty of Pharmaceutical Sciences 	
VISION 3 Gather diverse knowledge as a comprehensive university, and develop activities that contribute to recovery from the Great East Japan Earthquake.	10	 Graduate School of Financiacular controls / Faculty of Financiacular controls Graduate School of Agricultural Science / Faculty of Agriculture Graduate School of International Cultural Studies 	
VISION 4 Deepen cooperation with industry to produce innovations.	11	 Graduate School of Information Sciences Graduate School of Environmental Studies Graduate School of Biomedical Engineering Graduate School of Educational Informatics Education Division and Research Division 	
VISION 5 Collaborate with numerous partners, domestically and abroad, to spread knowledge to society.	12	■ Graduate School of Educational mormatics Education Division and Research Institutes ■Institute for Materials Research ■Institute of Development, Aging and Cancer	• 39
VISION 6 Achieve an open campus where many cultures coexist and interact with diverse value systems.	13	 Institute of Fluid Science Research Institute of Electrical Communication Institute of Multidisciplinary Research for Advanced Materials International Research Institute of Disaster Science Advanced Institute for Materials Research 	
VISION 7	14	■Tohoku Medical Megabank Organization	
Establish a university administrative structure that elevates synergy among individual constituents.		Inter-Department Institutes for Education and Research Center for Northeast Asian Studies Research Center for Electron Photon Science Research Center for Neutrino Science Institute for Excellence in Higher Education Institute for International Advanced Research and Education Frontier Research Institute for Interdisciplinary Sciences The Center for Academic Resources and Archives Center for Information Technology in Education Cyclotron and Radioisotope Center New Industry Creation Hatchery Center Technology Center for Research and Education Activities Cyberscience Center	· 50
		University Library	· 66

and the second second		~ ~
University Hospital	(68

Satomi Vision

Tohoku University as a fellowship of knowledge, open to the world, where people gather, learn, and create

 \sim "Achieving World-Class Status and Leaping Ahead" and "Leading the Post-earthquake Restoration and Regeneration" \sim

Satomi Vision conceives of Tohoku University as a fellowship of knowledge, open to the world, where people with diverse values can gather, learn, and create. It is based on my own concept for creating an efficient environment in which each individual student, instructor, and staff member can fulfill his or her own potential.

Satomi Vision

Tohoku University: a fellowship of knowledge, open to the world, where people can gather, learn, and create

Achieving World-Class Status and Leaping Ahead, Leading the Postearthquake Restoration and Regeneration

Guidelines for formulating the Satomi Vision

1. Position of the Satomi Vision

The Satomi Vision reaffirms the modern significance of the fundamental ideals (founding philosophy) and mission that Tohoku University has retained through its history up to the present time. It expresses the direction of our university (7-Vision Plan) for the next five years, and the policies and schedule that will get us there.

The Satomi Vision is not necessarily intended to present an exhaustive plan, but rather to narrow down our areas of emphasis. Specifically, Tohoku University will deepen the broad trust between it and Japan's citizens, while continually contributing to the sustained development of the world community by realizing the following components of the 7-Vision Plan: (1) Education, (2) Research, (3) Postearthquake Restoration, (4) Industrial-Academic Cooperation, (5) Cooperation with the Community, (6) Campus Environment, and (7) Emphasis on University Administration.

The direction indicated by this vision will be reflected by the yearly plan in the 2nd Evaluation for Current Mid-Term Goals, and be carried out in conjunction with the MEXT Execution Plan for University Reform, in the policies of the 3rd Evaluation for Current Mid-Term Goals, and in our mid-term plans.

2. The importance of universal guidelines for Tohoku University: the university's fundamental ethos and mission

The role of the university in the era of globalization and innovation Our community is undergoing rapid transformations in the midst of globally expanding competition, collaboration, and coordination. Universities are urgently required to both produce leaders who will clear a path for the globalization age, and to guide us in implementing a new society founded on innovation.

Contributing to the continued development of society as a research-focused university

In addition to implementing world-class research and education, since Tohoku University's founding it has applied the results of its research to solving problems facing society. It has contributed to the realization of a peaceful and just society by nurturing leaders, based on its tradition of Research First, its Open Doors policy, and its philosophy of Practice-Oriented Research and Education.

3. Shared ethos and direction of the Satomi Vision

"The university as a fellowship of knowledge, open to the world, where people gather, learn, and create"

We will create a venue for meaningful activities by our students, instructors and staff, and alumni, who all share a common identity as members of Tohoku University, while fully utilizing their individual abilities rooted in their diverse values.

Achieving World-Class Status and Leaping Ahead, Leading the Postearthquake Restoration and Regeneration

By combining the strengths of diverse individuals, we will: (1) leap ahead on the world stage as a hub for international intellectual endeavors, and (2) as one of the universities in the center of the Great East Japan Earthquake disaster area, work for the reconstruction of the Tohoku region and for the revitalization of Japan, while robustly leading new social paradigm shifts.

TOHOKU UNIVERSITY GLOBAL VISION



Strategic focuses and major policies for realizing 7-Vision Plan

In order to realize 7-Vision Plan, we will determine guidelines for its implementation in the form of strategic focuses, major policies, and an implementation schedule, all to be undertaken in the next five years, starting FY 2013.



Create a venue where students will grow into individuals capable of flourishing in the international community.

Strategic Focus (1)

Educational reforms, aimed at fostering global leaders, centered on improving the humanities curriculum

Major Policies

Establish and develop a leading-edge, creative, and advanced humanities curriculum to face modern challenges

We will develop an advanced humanities curriculum, from the students' first undergraduate year to graduate school that will become the foundation for nurturing global leaders who will face the challenges of modern society. The curriculum will be founded on logical cognitive and expressive abilities, and a proactive attitude towards learning. It will foster in students a broad perspective, communication skills, and problem discovery/solving abilities, rooted in knowledge and comprehension of culture, society, and nature. Additionally, it will confer an international mindset that understands and respects both Japanese and other cultures. Organic cooperation between specialized fields and humanities to foster a spirit of creative inquiry, multifaceted/relativistic cognitive skills, and diverse values

We will encourage close cooperation between advanced humanities and specialized education, transcending the faculty/graduate school divide, in order to foster individuals who are capable of creating new value and have broad perspectives that go beyond their specializations and fields. In addition to preparing a substantial degree program and diversified career path education, we will implement collaborative education by deepening our ties with universities abroad.

Development of an internationally compatible educational system that stimulates student interest in learning

In response to the internationalization of our community and diversification of values, we will structure a new educational system that stimulates student interest in learning. In order to do this, we will promote efforts that increase our educational system's international compatibility, such as implementing a GPA system and course numbering, adopting a quarter system to provide more diverse learning, and making other improvements to the curricula. We will also consider building flexibility into the academic calendar, including the timing of admissions and graduation.

Strategic restructuring of Liberal Education and student support systems

We will structure new Liberal Education and student support systems that distill the collective abilities of Tohoku University and integrate our educational practices with respect to surveys, research, development, and implementation. Our academic management will be bolstered through organic cooperation with specialized education.

Strategic Focus (2)

Creation of a global learning environment

Major Policies

Strategic international student recruitment and learning environment creation

We plan to consolidate our comprehensive internationalization promotion system with the aim of increasing our number of international students. Building on the results of the Global 30 program, we will strategically recruit international students in regions, fields, and programs of emphasis, enhance educational programs for international students, and offer them various forms of support.

Promotion of study abroad and international experience by Tohoku University students

In order to foster individuals capable of acting globally, we will expand our system for promoting study abroad and international experience by students at Tohoku University. Besides dramatically increasing short-term study abroad programs at the undergraduate level, we will move forward with the creation of a system for promoting student exchanges and overseas internships. For graduate students directly involved in research, we plan to expand our study abroad programs and accelerate internationalization at our graduate schools.

Cultivating understanding of other cultures and practical communication skills

In keeping with our aim to foster individuals capable of acting globally, we will work to cultivate advanced communication skills as these will enable students to get along with people with various linguistic and cultural backgrounds while being able to precisely explain their own point of view to others and solve problems. In addition, we will substantially improve foreign language education, particularly in English.

Strategic Focus (3)

Improved/enhanced student support

Major Policies

Restructuring/expansion of student financial aid system and creation/ improvement of student housing

We will expand our existing financial aid system while creating a new aid system targeting students with excellent academic records. We also plan to develop and expand our student housing (University House dorms) so that they serve as venues where students can develop an independent outlook while learning to respect various value systems and cultures within an international environment.

Rigorous harassment policy and improved mental care

We intend to expand our prevention policy for all forms of harassment and our mental care system to ensure that all students, including international students, will be able to lead a secure, healthy campus life. A new campus-wide support system will be provided for students with developmental and physical disabilities.

Improved/enhanced support for continuing education/careers

Drastic revisions will be made to our systems for providing support for continuing education and career seeking. We will enhance a number of aspects of our support for students wishing to go on to the graduate level, while further improving our career support for faculty and graduate school students, including international students, and postdoctoral researchers.

Expanded support for extracurricular activities

In order to encourage useful extracurricular activities that allow students to nurture interpersonal relationships and learn social skills, we will systematically upgrade and utilize our facilities, establish a support system composed of instructors from specialized fields, increase campus-wide support, and create a system for conferring official commendations.



Create, in our capacity as a world-leading research center, an open environment in which excellent researchers will gather.

Strategic Focus (4)

Environmental/support systems that extract diverse research abilities

Major Policies

Development of university-wide systems, and coordination/cooperation between departments

To create an open venue for research in which excellent scholars from around the world will gather, we will plan innovative, creative, university-wide projects with an international and strategic focus and establish a system of support through interdepartmental cooperation. We will proceed with the establishment of University Research Administration (URA) Center and make systemic reforms within Special Research Zones on campus.

Open research environments based on a flexible personnel system

As it is necessary to secure a wide range of world-class researchers and human resources, including experts in the industrial and political arenas, from both Japan and abroad, we will adopt a joint-appointment system and drastically rethink then reapply the annual contract system. We will design our systems so that the researchers, who come from diverse careers and backgrounds, are not placed at any disadvantages, and create an environment that attracts and retains excellent researchers.

Proactive recruitment of young/female/foreign researchers

In order to pursue strategic, creative research, we will aggressively recruit motivated, excellent young/female/foreign researchers and formulate systems under which they will have access to autonomous research environments.

Career creation for technical research assistants

We will provide an attractive professional environment for technical research assistants (research fellows, technicians etc.) with diverse and advanced specializations to contribute to their motivation and continued growth.

Strategic Focus (5)

Striving for a world-leading level of research

Major Policies

Establishing a world-class, leading-edge group of research organizations We will set up Special Research Zones on campus to pursue leading-edge research using all of Tohoku University's resources. These will focus the efforts of distinguished researchers from around the world and motivated young researchers. Organic connections will form between these Special Research Zones and Tohoku University's Graduate Schools and Research Institutes, giving rise to new knowledge cycles, while continuously conducting world-leading research.

Leaping ahead as a hub for international intellectual endeavors

We will leverage our overseas offices and liaison offices to promote international intellectual endeavors while actively using our connections with researchers and international students to expand our global network.

Strategic Focus (6)

Research that solves problems and contributes to human knowledge

Major Policies

Promotion of basic and interdisciplinary research, opening new research frontiers

We will create an environment in which a wide range of basic research, from the natural sciences to the human and social sciences, can be freely expressed, while encouraging field-transcending collaboration between researchers and focusing support on new interdisciplinary endeavors in order to continually open up new areas of research.

Promotion of research that produces innovation

We will form an industrial/academic knowledge consortium to develop worldclass research that contributes to the production of innovation in addition to creating systems under which innovative, risky research can be undertaken with confidence.



Gather diverse knowledge as a comprehensive university, and develop activities that contribute to recovery from the Great East Japan Earthquake.

Strategic Focus (7)

Steady execution of Tohoku University Reconstruction Action

Major Policies

Promotion of eight large-scale projects and development of universitywide management

We have been proceeding with eight large-scale government-supported projects since the Great East Japan Earthquake for the purpose of producing results that contribute to the Tohoku region's reconstruction and the revitalization of Japan. In addition to utilizing Tohoku University's resources to pursue these projects in an organized and uninterrupted manner, we will create a network to disseminate information on them in various forms of media.

Supporting areas of policy emphasis and developing new projects

We will contribute to reconstruction by producing results with our own independent project (Reconstruction Action 100+), and provide multifaceted support for new proposals. In working towards "creative reconstruction," we will plan projects to be systematically pursued in the future, expand new research, and pursue human-resources development.

Strengthening cooperation with national/local government and enter-prise

We will strengthen cooperation with national and local government and enterprise in order to ascertain community needs related to reconstruction, disseminate research results to the community, promote research useful in the creation of new industries that leverage regional assets, and foster human resources that will contribute to the Tohoku reconstruction and revitalization of Japan.



Deepen cooperation with industry to produce innovations.

Strategic Focus (8)

Further promotion of industrial/academic cooperation

Major Policies

Expansion and enhancement of collaborative/commissioned research

To ensure that the fruit of university research leads to innovation in enterprise, we will expand collaborative, commissioned industrial/academic research by improving our external communication capacity, fostering a spirit of cooperation between industry and academia among university instructors, systematically strengthening various ties, and improving our connections with regional enterprise.

Application/commercialization of research results

We will move forward with the application and commercialization of research results by promoting collaborative research aimed at meeting enterprise product needs, and creating collaborative research courses/departments that will become platforms for interpersonal cooperation with enterprise on campus.

Research results that give traction to new industry creation

Using operating cost subsidies and government investments apportioned in the FY 2012 supplementary budget, we are, as per the terms of these investments, promoting the commercialization of research results by steadily implementing collaborative research with enterprise. We are closely watching the trend towards systemic reform that will enable investment by universities through university-launched venture support funds etc., and promoting strategic industrial/ academic cooperation that will contribute to the creation of new industries.

Retraining for professionals

We will provide educational opportunities to the professionals who are the creative partners of industry, and support their retraining in addition to broadening their activities throughout our community.

Creation/utilization of intellectual property

We will strive to create/utilize strategic intellectual properties based on a wide range of university research while designing an intellectual property management system aimed at supporting the creation of collaborative research that leverages these properties.

Strengthening the Office of Cooperative Research and Development's support systems and functions

In order to strengthen the systems and functions of the Office of Cooperative Research and Development, which plays the role of providing a seamless link between industry and academia, we will work on enhancing support systems by leveraging the URA system, advancing and securing human resources for industrial/academic cooperation, and promoting cooperation on campus with relevant organizations while clarifying the position of personnel involved in industrial/academic cooperation.



Collaborate with numerous partners, domestically and abroad, to spread knowledge to society.

Strategic Focus (9)

Enhanced cooperation with the regional community

Major Policies

Create university-wide system to promote cooperative activities with the community

We will establish a university system to promote responsibility and encourage Tohoku University students and instructors to proactively engage in activities with the community. We will work hard to raise the profile of our liaisons between the university and community, increase visibility of university-wide community activities, strengthen ties with local government, and promote projects that address community issues.

Close collaboration between the community and alumni, expanding cooperative foundations

We will create a venue where Tohoku University students, instructors, and alumni can learn and conduct activities together with local residents, and establish a cultural/living environment in which they support one another harmoniously. By expanding the activities of the Tohoku University Shuyukai Alumni Association, we will deepen cooperation and exchange within the alumni network.

Contributing to the establishment/expansion of intellectual communities

We will embrace and encourage the intellectual curiosity of the community and promote nurturing education and research activities by widely leveraging To-hoku University's facilities and academic assets.

Strategic Focus (10)

Enhanced cooperation with the international community

Major Policies

Strengthening international communicativity

In order to improve communication with the international community, we will make it a university-wide task to appoint full-time staff for conducting general public relations in English in addition to cooperatively improving both the hard and soft aspects of our overseas-facing information communication systems. Moreover, we will work to host/attract international symposiums, and attract international academic research institutes promoted by local industry, academic organizations, and government.

Raising our worldwide university ranking

We will plan and implement effective measures for raising our worldwide university ranking, which will in turn lead to better name recognition for Tohoku University abroad and contribute to increasing our number of international students.

Fundamental improvements aimed at revitalizing outgoing international programs

After defining our global expansion strategy within our university-wide system, we will create systems that will encourage active participation in overseas programs by students and young researchers, and promote the development of new fields that will lead international trends.

Strategic utilization of overseas centers

We will utilize our overseas centers, which act as the international "face" of Tohoku University, as liaisons for personnel exchange (including the sending and receiving of international students), public relations activities, promoting international collaborative research/consortium creation, and information gathering activities.

Basic improvements aimed at stimulating recruitment of foreign personnel

In cooperation with the various departments, one of our university-wide tasks will be to systematically and comprehensively create an infrastructure to support the recruitment of foreign personnel.

Strategic Focus (11)

Enhance capacity for informative communication

Major Policies

Establishing and communicating Tohoku University's identity

We will conduct strategic informative communication activities based on a strong reaffirmation of Tohoku University's identity. This will be predicated on a renewed shared awareness on the part of our constituents regarding our university's fundamental ideals, mission, history, and vision for the future.

Development of effective, personalized communication

We will conduct effective communication by quickly and smoothly providing appropriate content by appropriate delivery channels to meet the diverse needs of the target audience (those who will receive the information). In addition to systematically ascertaining a wide range of university information, we will expand and enhance our public relations system in order to deliver personalized and effective informative communications.



Achieve an open campus where many cultures coexist and interact with diverse value systems.

Strategic Focus (12)

Creating a multicultural campus utilizing our unique surroundings and history

Major Policies

Creating a campus that encourages international and intellectual exchange Our campus environment will become vibrant with international intellectual exchange, which will be focused on open spaces where international and Japanese students, instructors, and visitors from abroad can freely drop by or meet, and where the results of Tohoku University's research will be exhibited. In addition to upgrading the University Library to act as our main learning commons, we will create spaces where people can relax and interact near university entrances, such as the new subway stations.

Using our history and natural environment to create scenery that facilitates academic work

We will maintain a campus environment that promotes learning and academic work by students, instructors, and the Sendai community by leveraging our lush, beautiful surroundings, historical buildings and memorials, trees, and monuments on our campuses.

Establishing an environmentally friendly campus to lead the post-earthquake reconstruction

We will proceed with the restoration and construction of our buildings to achieve a campus that leads the world in terms of safety and security. We will steadily implement environmentally friendly policies, such as reducing power consumption and adopting technologies that reduce our environmental footprint.



Establish a university administration structure that elevates synergy among individual constituents.

Strategic Focus (13)

Restructured/enhanced administrative infrastructure/operation framework

Major Policies

Clear division of roles and optimization within the university administration

We will establish a system that allows the president to, with the cooperation of department heads, take university-wide leadership based on the opinions of all the university's constituents to enable the development of strategic activities. Furthermore, we will clarify and optimize the roles and functions of university administration.

Fostering management personnel to take on university administration

To ensure that capable staff members become deeply involved in strategic operations within university administration, we will move ahead with the creation of systems that maximize performance by our team of instructors and staff by providing high-quality workforce enhancement and staff training.

Establishing campus-wide, English-fluent systems

We will undertake structural reforms to improve the English fluency of our administrative functions. In addition we will make active university-wide efforts to improve our personnel's English abilities by employing English-speaking staff and implementing practical English training and testing. Creating mechanisms to improve our capacity for on-site education and research

We will decisively implement structural workplace reforms, such as discontinuing unnecessary meetings/tasks, and consolidating "boilerplate" work. We plan to optimize on-site role division of instructors and staff, and create an environment in which each staff member can fully carry out his/her own work planning and implementation. With regard to on-site departmental education and research, we will construct mechanisms that recruit and support projects aimed at improving on-site capacity by individual staff and small groups comprised of various units -departments, majors, divisions, etc. We will continue to gather excellent human resources and create a rewarding workplace.

Enhanced application of information infrastructure to support diversified education and research

We will continue to promote the efficient and rational use of limited university resources, and affect necessary changes of consciousness, in order to support the diversified education and research activities that are appropriate to a world-class university. Simultaneously, we will plan for the sustained operation, enhanced application, and further advancement of our information infrastructure.

Promoting true gender equality

Under its "Open Door" policy, our university became the first national university in Japan to accept female students 100 years ago. Since then, we have striven to amend the gap between men and women, enhance our inclusive support system, and improve the research and work environment at Tohoku University even more. In addition, we will promote further comprehensive, organized efforts based on the Tohoku University Action Plan for Gender Equality.

Strategic Focus (14)

Compliance promotion system

Major Policies

Construction of a risk management system and advancement of individual and organizational compliance

We will establish a practical risk management system, able to cope with various internal and external risks, in which each constituent of the university will be a conscientious risk manager. We will work to advance individual and organizational compliance as a community and public entity.

Establish systems that emphasize research ethics in implementing and publicizing outstanding research

We will establish and disseminate rules related to research ethics in order to guarantee our various university research activities.

Strategic Focus (15)

Enhanced financial infrastructure

Major Policies

Enhance our financial infrastructure to enable a more active university administration

We will formulate a stable financial infrastructure by enhancing external fund acquisition, promoting funding from enterprise, and rigorously reducing costs. We will allocate budget to the areas of greatest need.

Strategic Focus (16)

A world-class hospital for a world-class university

Major Policies

Establish facilities and functions on par with international hospitals

In order to maintain and develop our leading-edge medical standards, the Tohoku University Hospital will become a hospital that is open to the world. We will cooperate and exchange personnel with leading international hospitals, particularly those in Asia, to conduct medical treatment, education, and research.

Establish a more stable administrative infrastructure

In order to practice leading-edge medicine at a level appropriate to a university hospital, we will improve medical care in critical areas and streamline administration to establish a stable administrative infrastructure.

Promote clinical research, translational research, and advanced treatments

As Tohoku University Hospital is one of Japan's leaders in innovation and advanced treatments, we will promote clinical and translational research. We will prepare a research infrastructure aimed at realizing next-generation treatments, construct a network spanning not only Miyagi Prefecture, but the entire Tohoku region, and develop our clinical research.

Foster medical professionals in response to community needs and providing medical services to the disaster area

In order to foster and produce medical professionals with advanced knowledge, qualifications, and forward-looking attitudes, we will construct new education and research systems for each profession. In order to restore regional medical services, we will support medical systems in the disaster area. In addition we will create model regional medical institutions to attract medical professionals to the disaster area.

Faculty's Vision

The Faculty's Vision illustrates the goals at the forefront of diverse education, research, and community partnership activities, based on each faculty's mission as well as the strategic focuses and major policies required to achieve them. We will further promote the reinforcement of university functions by mobilizing our advanced and diverse faculty organizations.

Faculties and Schools

Graduate School / Faculty of Arts and Letters Graduate School / Faculty of Education Graduate School / School of Law Graduate School of Economics and Management / Faculty of Economics Graduate School / Faculty of Science Graduate School / School of Medicine Graduate School / School of Dentistry Graduate School of Pharmaceutical Sciences / Faculty of Pharmaceutical Sciences Graduate School / School of Engineering Graduate School of Agricultural Science / Faculty of Agriculture Graduate School of International Cultural Studies Graduate School of Information Sciences Graduate School of Life Sciences Graduate School of Environmental Studies Graduate School of Biomedical Engineering Graduate School of Educational Informatics Education Division and Research Division

Graduate School / Faculty of Arts and Letters

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Graduate School / Faculty of Arts and Letters performs the world's most advanced research, drawing on the intellectual heritage of humankind, in 25 specialized fields of humanities and social sciences. At the same time, the School trains researchers and advanced professionals who actively contribute to the creative development of research, while also fostering and cultivating leaders who are capable of flexibly utilizing their extensive knowledge and expertise in society.

[Organizational Policies for Reinforcing Functions (-2017)]

- Our vision is to pass down and further develop our basic philosophy of performing the world's most advanced research, drawing on the intellectual heritage of humankind. To this end, we are preparing to become an international research center by developing a system that will promote interdisciplinary and leading-edge joint research programs to further facilitate research and education. At the same time, we are engaged in basic research projects that provide a broader academic foundation, with the goal of founding new academic fields in response to the needs of modern society. In doing so, we are able to pursue leading-edge and multi-faceted studies in the humanities and social sciences.
- OWe are preparing an environment that is suitable for an international research center, which is an essential aspect of "Achieving World-Class Status and Leaping Ahead." In addition, we are working to establish an educational support system for fostering researchers who will contribute to creative research activities. At the same time, we value the traditions that helped to shape one of the best humanities and social sciences studies institutions in Japan. We are committed to actively sharing our research outcomes with the international community while promoting interdisciplinary cooperation inside and outside the university.

[Strategic Focus and Major Policies]

1. Promoting globalization in education

We promote foreign language skills and study-abroad programs for students. For undergraduate students, we set the goal of fostering global talent (specifically, we intend for 15.5% of the total graduates to have acquired standard proficiency in a foreign language, and to have studied abroad) and strive to achieve this goal. Through the Leading Program and interuniversity/faculty academic exchange programs, we will extend support for international students and make funding appeals to society at large so that over the next 5 years we can achieve a 20% increase in the number of students studying abroad for over 3 months, including those participating in exchange programs, and the same increase in the number of international researchers and graduate students. We are also exploring potential sister university/faculty arrangements and dual-degree systems in order to fill our quota of graduate students and qualitatively expand postgraduate education.

2. Creating new interdisciplinary studies that innovate humanities and social sciences

In 2010, we established the Merenda Seminar, in which teachers exchange and discuss cutting-edge knowledge. A joint interdisciplinary project for young researchers, called the Spatial History Study Group has been launched as well. The Well-being Research Project, started 10 years ago, was continued as the "Post 3.11 Well-being Research Project" to study the ideal state of humanities and social sciences in modern society. These interdisciplinary research projects have provided a great deal of support for our efforts to obtain foundation (S) and (A) Grants-in-Aid for Scientific Research.

3. Returning intellectual resources to society

We have shared the intellectual resources we have accumulated with society at large in many ways, including various types of publications, articles in scholarly journals, public seminars, and lectures at symposiums. Expanding these programs by 10% will enhance our degree of social engagement, and public relations will be reinforced by more active utilization of the media. Through all of these outreach activities, we will enhance our "Re-training for Professionals" projects.

4. Integrated linguistic research for effective communications

We provide a wide range of linguistic science studies, including (1) world-class corpus linguistics and language-recognition neuroscience; (2) dialectology, especially including the Tohoku University Center for Dialect Studies; and (3) applied Japanese Education, which helps students to cultivate multi-cultural perspectives. Cooperation among these programs and integration of their results will help to elucidate the functional and structural features of effective communication and provide perspective for resolving social issues from the standpoint of linguistics studies.

5. Development of an Interfaith Chaplain Training Program and its Application in Society

In 2012, the Practical Religious Studies Sponsored Seminar was established. This seminar was launched as the first of its kind among Japanese universities in an attempt to train advanced professionals (interfaith chaplains) who practice religious care from a nondenominational standpoint. The ultimate goal of this program is to break through the closed structures of religious care resulting from religious situations that are unique to Japan, and to actualize the potential social functions of religion. This attempt has drawn considerable attention from the religious, medical, and media communities. We are seeking funding in order to continue this sponsored seminar in 2015 and beyond. We are also trying to implement this type of chaplaincy practice more broadly, in order to assist those who need religious support at medical and care facilities throughout Japan, by actively introducing our seminar activities to society at large.

TOHOKU UNIVERSITY

Graduate School / Faculty of Education

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Graduate School / Faculty of Education promotes academic research on education, with the goal of contributing to the continuation and creative development of educational sciences. We pursue this goal by teaching academic results from an interdisciplinary and comprehensive perspective, and by training students with advanced research capacities, expertise, and skills based on profound academic knowledge.

[Organizational Policies for Reinforcing Functions (-2017)]

- OBased on the fundamental organizational philosophy of training students with advanced research capacities, expertise, and skills based on profound academic knowledge of education, we are developing a curriculum aimed at conveying practical knowledge at the undergraduate and graduate levels. In addition, we aim to pursue advanced research in the fields of education and educational psychology by actively participating in reconstruction efforts after the Great East Japan Earthquake and Tsunami.
- OWe are working to develop an environment that promotes academic exchange with researchers and students from overseas universities, an effort that is essential for "Achieving World-Class Status and Leaping Ahead" and for establishing support systems for students wishing to study abroad. At the same time, as a core university for academic research projects on education, we are vigorously promoting the development of an international jointcredit arrangement.

[Strategic Focus and Major Policies]

1. Education reform for fostering global leaders

As part of our 5-year "Asia Joint Degree Project," we are in consultation with Korea University regarding development of a joint-degree curriculum. An English summer course was also launched in 2012. We will further develop this project over the next 4 years. Specific efforts toward these goals include: 1) tripling English medium classes by hiring more teachers from overseas, 2) doubling overseas education participation by introducing an original scholarship system, and 3) doubling the number of international students by setting up a contact desk at the Education Network Center, specifically designed to accept international students.

2. Toward world-class research

Through the ongoing "Asia Joint Degree Project" and other subsequent projects, we promote international joint-research programs that target teachers and graduate students and reinforce our capacity to share information internationally. Specific activities include: 1) introducing approximately two highly qualified teachers from overseas, and establishing an office in charge of international research work; 2) launching international joint research projects involving the Graduate School of Education teachers as the core staff, using the Dean's discretionary funding; and 3) publishing in English-language journals to share our research results with the world.

3. Post-disaster support through Tohoku University Reconstruction Action and pioneering new projects

We are currently engaged in foster parenting support for orphans of the Great East Japan Earthquake and Tsunami. To this end, we are opening the Support Office for Children in the Aftermath of the 2011 Great East Japan Earthquake (Graduate School of Education, Tohoku University) and initiating the "Reconstruction from the Educational Perspective" project as part of the Tohoku University Reconstruction Action 100⁺. We will continue to promote these two projects for the next 4 years, while developing two additional new projects. One of these projects aims to promote research on "psychological aid," i.e., mid-to long-term assistance given to victims, with the support of external funding. The other project aims to develop a training program for school counselors who are capable of providing psychological care to child victims and teachers, based on their expertise, in partnership with the Japanese Society of Certified Clinical Psychologists, the Japanese Organization of Clinical Development Psychologists, and the Japanese Association of School Psychologists, and other organizations; the project will share its results with Japan and the rest of the world.

Graduate School / School of Law

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Graduate School / School of Law builds its intellectual foundation through its advanced research on law and political science, while training students to be "legal and policy generalists" working to create a better society, outstanding intellectuals who will take leading roles in society, and highly skilled legal and policy professionals. In this manner, we are pursuing our mission of contributing to the region as well as the whole world.

[Organizational Policies for Reinforcing Functions (-2017)]

- OWe are training students to be excellent legal and policy professionals, while fostering researchers and teachers necessary to sustain the training of such professionals. We also cultivate advanced professionals who acquire knowledge of international research products and adopt an international mindset, and who are therefore capable of succeeding globally.
- OWe intend the achievements of our legal and political research to benefit society at large in order to create a better society. We also engage in building a partnership network of international researchers in the fields of legal studies and political science.
- OWe actively participate in efforts related to the reconstruction of Tohoku and the regeneration of Japan following the Great East Japan Earthquake and Tsunami of March 2011, based on industry-academia-government collaboration. We also facilitate these efforts through education and research activities.

[Strategic Focus and Major Policies]

1. Training excellent legal and policy professionals and fostering advanced professionals

Our Law School recognizes that our rapidly changing society increasingly demands qualified legal professionals. Therefore, we are working to train students to become legal professionals who are capable of preventing and resolving legal disputes in modern society, based on a proactive and creative mindset. The School of Public Policy promotes education that contributes to the reconstruction of Tohoku and the regeneration of Japan while disseminating information to the international community.

In order to sustain and develop these educational programs, we have reformed our Doctoral Courses. In addition to the cultivation of researchers who study through traditional methods, such as the analysis of theories and the comparison with foreign countries, we are pursuing the fostering of interdisciplinary researchers and faculty members with a practical mindset who are capable of logically applying the hands-on knowledge that they have obtained over the course of their experiences in legal practice.

We will expand the Cross-National Doctoral Course, which has delivered significant results

ever since the Global Center of Excellence (GCOE) Program, and continue to train talented individuals who will be capable of introducing expertise-oriented information and opinions about Japan to the international community.

2. Applying our research achievements to benefit society and build a network of international researchers

Recognizing that it is important and fruitful in the fields of both law and political science to bridge theory and practice, that is, to make specific and practical proposals based on theory, we will construct a collaboration network to promote joint research projects between industry and the government, in addition to sharing research achievements with them. We also try to deepen mutual understanding of legal and political research topics with foreign academics, based on international exchange that will be realized by the expansion and development of the Cross-National Doctoral Course, as well as the construction of an international network aimed at the mutual sharing of research achievements. The resultant knowledge will be applied to the task of identifying, analyzing, and resolving new challenges.

3. Active participation in the reconstruction of Tohoku and the regeneration of Japan after the 2011 Great East Japan Earthquake and Tsunami and fostering talented individuals to promote these projects

We are actively participating in the reconstruction of Tohoku and the regeneration of Japan via the industry-academia-government collaboration network built through educational and research activities. At the same time, we are training talented individuals who will continue to promote these projects in the future and lead further development in this area.

We will carry out research projects intended to develop theories and make legislative recommendations regarding the design of legal systems. In addition, these projects are intended to generate appropriate proposals for immediate action, in particular regarding policy and implementation based on the lessons learned from the disaster. We also aim to contribute to the reconstruction of the disaster-affected areas, and Tohoku at large, by sharing information in a timely manner.

In our efforts to promote the reconstruction of Tohoku and the regeneration of Japan, we are conducting research projects in collaboration with industry aimed at resolving various problems: urban development; stabilizing citizen's lives; revitalizing business, employment, and labor; school education; welfare and social security; intellectual property; and compliance from the legal and political perspectives. We are developing these research projects and implementing them in order to deal with these problems.

Graduate School of Economics and Management / Faculty of Economics

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Graduate School of Economics and Management and Faculty of Economics work to generate leading-edge research results through high-level research on economics and management and train leadership figures through comprehensive education based on research achievements. Our ultimate goal is to contribute to regional and global communities through such work.

[Organizational Policies for Reinforcing Functions (-2017)]

- OBuilding on and developing the aforementioned vision of the faculty, over the next 4 years we will further advance globalization of education and research activities in light of current socioeconomic challenges.
- OWe link our research and education with regional challenges, and thereby contribute to revitalization and reconstruction of local communities.

[Strategic Focus and Major Policies]

1. Building and developing a curriculum to foster individuals with global perspective

The faculty trains highly motivated individuals with global perspective through our unique educational programs. This provides an important foundation for the Tohoku University Global Leadership Program by introducing classes that emphasize problem solving, reinforcing small-group education, and promoting study-abroad programs. The graduate school established the GPEM (Global Program for Economics and Management) course in the Master's Program. This course encourages international and Japanese students to study jointly and engage in overseas trainings and PBL-based reporting, so that they can achieve in-depth knowledge of economics and management, acquire the capacity to identify and solve problems, and develop the international perspectives that are required for successful advanced professionals capable of functioning in multi-lingual, multi-cultural environments. In addition, we have a 5-year program combining the GPEM graduate course with undergraduate education, aimed at motivating undergraduate students to acquire advanced capabilities to work globally from an early stage. The GPEM course admits eight international students and eight Japanese students each year. The Accounting School trains high-quality accounting professionals capable of succeeding globally by offering small-group education and instruction in communication skills.

2. Socioeconomic problem solving based on data science and service research The Center for Data Science and Service Research was founded in 2013. The center integrates data-service science and economic-management theories to solve modern socioeconomic problems enabling innovation through "big data" analysis. International scholars, as well as faculty members specializing in research, have been assigned to the center, in order to promote partnerships with research institutions inside and outside Japan. Through these efforts and partnerships, we intend to conduct research and internationally publicize the results, leading to creation of new industries and sustainable economic growth.

3. Building an economic research base to support our aging society

In light of our strengths in disciplines such as economics of aging, medical economics, and welfare economics, and given that Tohoku is a region with rapidly aging population, we are in a unique position to share with the rest of the world our research results aimed at addressing the challenges of our aging society. We will launch international research projects centered on Japan, a frontrunner among aging societies, while reinforcing academic cooperation with leading universities in the Scandinavian welfare states and East Asia. In addition, in partnership with the Center for Data Science and Service Research, we also reinforce our capacity for research and policy-making. Our partnership with the Graduate School of Medicine allows us to promote research projects on medical policy and social management, utilizing knowledge of economics and management. Through these partnerships we build a global research base on the economics of an aging society.

4. Forming a research base for regional partnership to lead post-disaster reconstruction

The Earthquake Recovery Research Center was launched immediately after the Great East Japan Earthquake in 2011. It has established a model of inter-university, communitybased reconstruction study systems in coordination with government offices, local municipalities, universities, and private organizations inside and outside the Tohoku region. The Center was the first of its kind in the field of economics and management. In addition, for a 5-year period starting in 2012, the Center was able to secure a budget from the Special Account for Reconstruction from the Great East Japan Earthquake; this funding supports implementation of a project designed to support restoration of local industry. The Center will seek to obtain large-scale competitive research funding for more in-depth research projects, and to share the results with the rest of the world.

5. Revitalizing renovation of local business leading post-disaster reconstruction In the rapidly changing landscape of globalization, current policies that focus on attracting factories have limits on their ability to restore and develop local economies. A new measure to accelerate local business renovation, known as "Economic Gardening" in the United States, is therefore essential. We established the "Regional Innovation Producer School," which targets small- and medium-sized companies with the aim of revitalizing local businesses. Unlike conventional MBA education, this program aims to promote continuous business renovation as well as mastery of business management. To this end, the program has introduced a system for providing comprehensive support covering the stages from innovative business planning through its implementation by employing or contracting external professionals. By introducing activities that are unprecedented in national universities, we are aiming to support business innovation and over 200 individual entrepreneurs by 2017.

Graduate School / Faculty of Science

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Graduate School and Faculty of Science are committed to promoting education and research, which contribute to the progress of the human race, through the study and development of the natural sciences. To this end, we are pursuing pioneering research with an emphasis on unfettered ideas and originality. Moreover, we are equipping talented individuals with an extensive and profound knowledge of science and superior research capabilities. With this scientific mindset, these individuals will be able to overcome a wide range of problems confronting society at large from the standpoint of front-line research. It is our mission to establish a global hub for research and education in the natural sciences.

[Organizational Policies for Reinforcing Functions (-2017)]

- OWe are committed to further developing the faculty's fundamental philosophy of exploring natural principles and laws and elucidating the truths concerning nature, which is driven by our insatiable curiosity about the wonders of the natural world. For this purpose, we are establishing frameworks, which enable each faculty member to concentrate on his/her research and education, while strengthening our public-relations activities oriented toward society at large. Our goal is to improve public understanding and support for our basic research activities. In this manner, we are promoting world-class research.
- OWe are continuing to improve our research and educational facilities, as well as the campus environment, to establish a world-leading center for research and education. This effort is indispensable to fulfilling our goal of "Achieving World-Class Status and Leaping Ahead." At the same time, to meet the needs of the ongoing globalization of our university, we are continuously evolving and refining our research, educational and support systems, including the administration.

[Strategic Focus and Major Policies]

1. Creation of a global hub of research and education in science and mathematics We are constructing the necessary facilities and improving the campus environment to create a world-leading center for research and education in science and mathematics. In time for the opening of the Tozai Subway Line in Sendai, expected to occur in FY2015, we are adding sidewalks and making other improvements to facilitate access to the Aobayama North Campus. By the end of FY2014, a new seismically isolated building containing a 100-seat hall for international symposia and space for poster sessions and receptions will be opened. Areas for free discussions among students, faculty members, and visitors have also been allocated. We are renovating and constructing student support and welfare facilities aimed at meeting the needs of both Japanese and foreign students. 2. Structural refinement of our research and educational systems to meet the needs of ongoing globalization

We are constantly strengthening our international-exchange support programs by establishing strategic international-exchange agreements, as well as by other means, in order to increase the numbers of our students studying overseas and foreign students studying here. To facilitate this, we are increasing the number of lectures given in English and hiring foreign faculty members and teaching/research assistants at both the undergraduate and graduate levels.

To achieve better global recognition and presence for the university, we are increasing our global public-relations activities, primarily through our websites.

In addition, we are promoting the further globalization of research and implementing various measures, such as a sabbatical acceptance support system, which allows for medium- to long-term stays by outstanding foreign researchers.

- 3. Communications emphasizing the importance and roles of the natural sciences We are doing our utmost to explain to the general public how basic scientific and mathematical research contributes to society. An introductory video clip for the School of Science website is being prepared. Moreover, we are developing a program for subsidizing the publication of books, magazines, textbooks, and handbooks. We are actively cultivating society's interest in basic scientific and mathematical research by building closer ties with natural science–related and other types of facilities run by local governments, such as the Sendai Astronomical Observatory. In addition to these activities, we are strengthening our cooperation with the Tohoku University Museum of Natural History.
- 4. Framework to allow faculty members to dedicate more time to research Since the incorporation of the University, an increasing number of faculty members have expressed concerns that, due to the reduction in the number of faculty, more time is spent on administrative work than on research and education. Therefore, we are addressing this urgent issue by securing enough time for the faculty to do their research. We are reviewing the sabbatical system already in place, as well as the specific contents of various duties, to come up with measures to secure more time for more faculty members to dedicate to research. This includes a review of the tasks related to entrance examinations and improvements in the education and research support systems. We will present guidelines and/or reports before the end of the second phase of mid-term goals.
- 5. Reorganization of the administrative systems to facilitate scientific and mathematical research

The natural sciences consist of mathematics, physics, astronomy, geophysics, chemistry, earth science, and biology. Each of these fields has a long separate history of development and a unique educational system. Integration of their educational administrative systems is difficult due to the different subject matters of each department or course. Moreover, finance and accounting tend to have their own specific problems. In order to address these issues, we are working to establish more efficient administrative systems and organizations suitable for a scientific and mathematical research division in part by promoting the sharing of information regarding matters related to accounting.

Graduate School / School of Medicine

[Faculty's Vision (Basic Philosophy and Mission)]

- Oln accordance with the ideals and other principles of Tohoku University, the Graduate School / School of Medicine seeks to recruit people from Japan and abroad; provides education, research, and state-of-the-art healthcare in an integrated manner; and actively promotes training of excellent internationally competitive researchers and leading physicians and other healthcare professionals who have advanced medical knowledge and skills, as well as well-rounded personalities.
- OThe Graduate School / School of Medicine promotes cutting-edge, unique, and creative research in each field of basic and clinical medicine, including oncology, neuroscience, organ transplantation, disability sciences, life sciences, medical engineering, and aging science. Furthermore, the School explores new fields by interdisciplinary research across fields and organizations, with the goal of developing new medical technologies and improving the level of healthcare.
- OThe Graduate School / School of Medicine contributes to the promotion of the health of Japanese citizens and people throughout the world through the training of experts in medicine and related fields, as well as dissemination of research results to society.

[Organizational Policies for Reinforcing Functions (-2017)]

- Oln order to preserve and expand on the faculty's fundamental ideals of training leaders and practitioners in medicine and healthcare and contributing to improvement of the health of people throughout the world, we will attempt to further expand undergraduate and graduate education by improving the humanities curriculum and internationalization; promote creative research by each member of the faculty; perform interdisciplinary research centered around the United Centers for Advanced Research and Translational Medicine and research in 'big data' medicine; and aim to disseminate to society the results of cutting-edge, multifaceted research in fields related to medicine, including personalized medicine and development of drugs and medical devices.
- OWith the goal of creating a global learning environment that is essential for "Achieving World-Class Status and Leaping Ahead," we are proceeding with the establishment of support system for education and research, including various support offices, biomedical research core, a clinical sample bank, and a third-party system for reviewing research ethics. These efforts take advantage of the University Research Administration (URA) in collaboration with the Institute of Development, Aging and Cancer, Tohoku Medical Megabank Organization, and other organizations. We will also actively support joint research inside and outside the university, industry–academia collaboration, research aimed at practical application of study results, and restoration of medical services in the disaster area. These efforts are undertaken in collaboration with the university hospital, which serves as a hub of promotion of clinical research and cutting-edge medical service.

[Strategic Focus and Major Policies]

- 1. Establishment of the education curriculum and system for training leaders for the new era
 - \bigcirc Improvement of humanities curriculum

In addition to having advanced expertise, physicians who pursue next-generation medical care are required to be highly cultured. The cultural basis of such physicians would consist of abundant academic expertise, cooperativeness, altruism and empathy, creativity, faithfulness to duty and courtesy (meta-competencies). We will introduce projects to foster these attributes, including a course on the introduction to clinical practice in the first training phase prior to clinical education, a learning program focused on identifying and solving problems, and a research ethics education that meets international standards.

\Diamond Reform of the undergraduate curriculum

In order to attract talented students interested in personalized medicine and leadingedge medical research, we will develop undergraduate programs for bioinformatics and genomics in collaboration with the Graduate School of Information Sciences. In addition, we will strengthen training in basic medicine in the School of Medicine, establish a system for short-term overseas study, and support research activities by undergraduates through the physician scientist training program. To train professionals who can respond to globalization, we will implement practical English courses that include role-play of actual clinical practice, as well as mock presentations and question-and-answer sessions at international academic meetings. In addition, we will give students opportunities to participate in international conferences using teleconferencing systems, and introduce student debate sessions and presentations by non-Japanese lecturers. These reforms will support the students who take the USMLE (United States Medical Licensing Examination). We are already participating in ECFMG (Educational Commission for Foreign Medical Graduates) Medical School Web Portal (EMSWP), and we have introduced the Electronic Credentials Verification program. We will further aim to improve the quality of our medical education by considering a certification system for medical education that meets international standards.

◇Reform of graduate education

We will continue to increase the scholarship and RA budget for students in the MD-PhD course, establish overseas study programs at institutions including the National Institutes of Health (NIH), prepare a system for the development of virtual education contents, and promote education about fairness in research using materials on the web. Additionally, we will develop an education and research program in genomics using the genomic information of several tens of thousands of people collected by the Tohoku Medical Megabank Organization.

We will discuss creation of a public health major (tentative name) to strengthen the system for training high-level professionals with public health knowledge. In the Mas-

ter's program and the first semester of the doctoral program in School of Health Sciences, we will establish professional courses in genomic medicine, including a training course for genetic counselors (already initiated in April, 2013 in the Master's program) to train high-level professionals who can promote personalized healthcare and medicine.

◇Reform of the entrance examination and related matters in order to secure excellent students

We will continue to reform the entrance exam system in the undergraduate and graduate schools in order to accurately select excellent students. We will make efforts to increase the number of applicants to the graduate school via information sessions and our website.

2. Globalization of education and research environment

◇Promotion of international exchange

The School of Medicine will encourage overseas study during training in basic medicine in the third year of undergraduate program, as well as during training in advanced medicine in the sixth year of undergraduate program. Over the past 3 years, an average of 43 undergraduate students per year studied abroad. We will attempt to increase this number to 50 students per year on average over the next 4 years. In the School of Health Sciences, we will offer courses for technical English in nursing and radiology, as well as technical English related to laboratory testing in the third year. In addition, we will certify overseas nursing training as credits, thereby promoting globalization of undergraduate education. In the graduate program, we will strengthen the English-speaking environment within the graduate school by aiming to accept 100 foreign students per year (vs. 82 in 2012) and increasing the number of sessions in English to 45 (35 in 2012). We will continue collaborating with overseas hub institutions, such as the NIH of the United States, as well as improving the system for sending graduate and undergraduate students and young faculty members to overseas institutions (specifically, in terms of the budget and sabbatical system), thereby fostering internationalism. Our goal is to send 3 young faculty members per year to collaborating overseas institutions for medium-term stays.

3. Attempts to conduct creative research and interdisciplinary research that change medicine

$\Diamond \mathsf{Enhancement}$ of creative research by individual faculty members

We will invite talented researchers from Japan and abroad for all positions, ranging from assistant professor to professor, and provide them with an excellent education and research environment aimed at fostering creative and unique research by each of them. We will strengthen the support function of the biomedical research core and support applications for research grants through the Planning Office. In addition, we will improve the system for sending faculty members to overseas institutions for training, primarily through the International Exchange Office, which was strengthened by appointing fac-

ulty members for its operation in academic year 2013. We will also increase the diversity of faculty members via the joint-appointment system and "Special Research Zones" on campus to create a system in which talented young individuals, including tenuretrack faculty members, can fully demonstrate their ability to conduct research. In addition, we will increase the time that faculty members can use for their research by improving the URA.

◇Promotion of research in 'big data' medicine and development of personalized medicine

In collaboration with the university hospital, the Tohoku Medical Megabank Organization, and the Graduate School of Information Sciences, we will promote big-data medical research, including genomic epidemiology, which uses large-scale genomic information, omics information, and other patient information; in addition, we will connect big-data medicine to the development of personalized medicine. We will secure the RA budget for graduate students, create a graduate education system in collaboration with the Graduate School of Information Sciences, and promote the foundation of the public health major (tentative name) within the graduate school.

 $\diamondsuit\mbox{Creation}$ of education and research environment that accelerates interdisciplinary research

We have maintained and expanded the research organization established by the Network Medicine GCOE (global center of excellence) and the Neuroscience GCOE programs as an organization of the United Centers for Advanced Research and Translational Medicine; this entity was rebuilt as 12 "core centers" of oncology, disease epigenomics, drug discovery, and other fields. Each core center consists of laboratories that belong to research fields in medicine, dentistry, and pharmaceutical sciences, as well as many laboratories that belong to our faculty, including those in the Institute of Development, Aging and Cancer, the university hospital, and Tohoku Medical Megabank Organization. Through this reorganization, we are establishing a system in which young researchers can conduct interdisciplinary research outside the boundaries of the specialized fields of their laboratories. We will discuss the formation of a World Premier International (WPI)-type research center around the United Centers for Advanced Research and Translational Medicine, further strengthen collaboration inside and outside the university, and reinforce the system for interdisciplinary research. (We have initiated an examination of the function of the URA in the Seiryo area in the Program for Promoting the Enhancement of Research Universities.)

4. Efforts to connect research results to practical applications and promote industry–academic joint research

\Diamond Promotion of development of drugs and medical devices

In collaboration with the Clinical Research, Innovation, and Education Center at the university hospital, the United Centers for Advanced Research and Translational Medicine will take the lead in promoting the development of new pharmaceutical products and medical devices, based on the candidates discovered in basic research at the Graduate School of Medicine.

◇Creation of a clinical sample bank

In collaboration with the university hospital and Tohoku Medical Megabank Organization, we will proceed with banking of clinical samples collected by faculty members in clinical fields, in order to establish a research environment that facilitates the verification of the results of basic research in human diseases and the search for biomarkers. In order to launch the clinical sample bank service in 2018, we will save information about the samples stored in individual departments, as well as the list of diseases, in a database.

♦ Strengthening of industry–academia collaboration

We will continue to expand joint research by disseminating information on the seeds of new technologies and drugs in collaboration with the School of Medicine. In addition, two members of the URA will search for companies that are suitable candidates for industry-academic collaboration. Furthermore, we will form an open intellectual community aimed at expanding research and contributing to society by promoting the establishment of joint research seminars and establishing an on-campus system for development, focusing on practical applications. Utilizing the resources of the Commercialization of Joint Research Program of Tohoku University and the Science and Technology Radical Innovation and Entrepreneurship Program of the Center for Innovation (COI STREAM), we will aggressively promote the practical application and commercialization of the discoveries made by the Graduate School of Medicine. These efforts will be conducted under the supervision of the Office for Conflict of Interest Management. The "Office for Promotion of Practical Application at the Graduate School of Medicine (tentative name)," which will be established through collaboration between the United Centers for Advanced Research and Translational Medicine and the Clinical Research, Innovation, and Education Center at the university hospital, will take the lead in promoting practical application of drugs and medical devices derived from the results of basic research performed at the Graduate School of Medicine. We will widely disseminate information on these new projects in Japan and abroad, thereby enhancing the visibility of Tohoku University.

5. Strengthening of the support system for research

 $\diamondsuit Strengthening of the support system for research by professional staff, including URA members$

In order to prepare a system that enables faculty members and young researchers to concentrate on their research and promotes prompt use of research results and widespread dissemination of information on these results, we will utilize the URA to strengthen the functions of support offices (Planning Office, Evaluation Office, the International Exchange Office, Public Relations Office, Computing and Information Technology Office, and the Office for Promotion of Practical Application [tentative name]). As a part of a WPI-type center, we will expand a system for supporting research activities throughout the entire Seiryo area, e.g., by appropriately managing projects and intellectual property, obtaining outside funding, and collaborating with industries. The overall goal of these efforts is to promote research activities and cooperation with society.

6. Restoration of medical service in a disaster area by training healthcare professionals in the community

◇Training healthcare professionals and establishing a system for supporting medical services in the disaster area

We will support medical services in the disaster area and promote education of local healthcare professionals by providing training programs via the Comprehensive Education Center for Community Medicine and the Clinical Skills Laboratory. In addition, we will implement support for remote medical care, telepathology, and remote case conferences by connecting the disaster area and the university via telemedicine systems. We also continue to contribute to the disaster area through the Center for Community Health (in the nursing field) and by measurement and management of radiation exposure (in the radiology field).

Establishment of disaster medicine and disaster response model

In collaboration with the International Research Institute of Disaster Science and Tohoku Medical Megabank Organization, we will train healthcare professionals who engage in disaster medicine. To this end, we will sponsor practical lectures by healthcare professionals who experienced the 2011 Great East Japan Earthquake, based on their knowledge and experience, as well as lectures comparing to response to the 2011 Great East Japan Earthquake to the responses to historical disasters in Japan and abroad. We will propose models for response to major disasters, and then share these models with medical communities in Japan and abroad.

7. Creation of a productive and creative environment on campus, and promotion of flexible use of facility and equipment

⊘Improvement of the environment for extracurricular activities of students

We will improve the athletic field and gym from a whole-university perspective.

 \Diamond New construction of the Seiryo auditorium

We will proceed with renovation of Seiryo Hall and new construction of Seiryo auditori-

um, and expand the function of the new building as a central facility on the Seiryo campus.

◊Effective utilization of Building 6 and the Tohoku Medical Megabank Building (tentative name)

We will flexibly use the two new buildings completed at the end of 2013 as sites for research and education on 'big data' medicine and personalized medicine, in collaboration with the Tohoku Medical Megabank Organization.

◇Expansion of common space

As new buildings are completed, we will expand the common space in the new and existing buildings. By doing so, we will strengthen our support for endowed chairs and largescale projects, promote industry–academia collaboration, and attract venture companies.

- 8. Response to next-generation education and research based on a continuous review of organization and operation
 - \diamondsuit Organizational operation by appropriate governance

Within our governing board, we will establish groups for information collection and analysis, establishment of research centers, outreach, and other functions. In addition, we will strengthen the activities of related offices, committees and the university hospital and collaboration among them. Furthermore, we will improve the work environment and enhance career support for female faculty members.

♦ Construction of a system for accumulating and analyzing data regarding activity status

We further expand the system for evaluation of faculty members. We will collect data concerning research funding, presentations at meetings, publication of papers, newspaper reports, and other matters. Furthermore, we will establish a system that enables chronological analysis of these data at the level of the individual faculty member, field, major, and the entire Graduate School.

\diamondsuit Evaluating the future of medical research and education

Based on trends in Japan and around the world, we will continuously review the education and research activities that the Graduate School of Medicine is expected to implement. In particular, we will re-examine the selection of professors by taking into account the requirements of both the academic community and society at large. Through these reviews, we will make sure that the three majors in the Graduate School of Medicine and the university hospital can carry out education and research activities together, taking advantage of the strengths and characteristics of Tohoku University.

◇Expansion of the tenure-track system

In order to train world-class researchers, we will further expand the areas in which the tenure-track system is applied, thereby providing opportunities for independent research to promising young researchers in areas that are still developing academically, and strongly supporting education and research in these fields.

Graduate School / School of Dentistry

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Graduate School and School of Dentistry were formed as part of a research-centered university based on the "Research First" principle, "Open Doors" policy, and the tradition of "Practice-Oriented Research and Education." To fulfill these goals, the School of Dentistry trains talented dentists who are equipped with a strong research background and high ethical standards. The dentists we train will be capable of contributing to the well-being of people via a holistic approach, as well as becoming world-class researchers and educators. We aim to foster researchers, educators, and dentists as highly specialized professionals. In addition, we will train administrative officers who are equipped with a scientific mindset and deep insight, as well as excellent expertise nurtured through unique cutting-edge research activities, and who are ready to contribute to society.

[Organizational Policies for Reinforcing Functions (-2017)]

OWe are committed to further developing our fundamental philosophy to contribute to people and society through promotion of dental education and research integrating clinical and academic approaches. Toward this goal, the School provides world-class dental education based on global standards, including humanities curricula for both juniors and seniors, to cultivate moral values; advanced courses aimed at conferring research capabilities and a global mindset; and practical training involving participation in clinical practice combined with simulation training, with the goal of improving students' practical capabilities. The School also provides world-class graduate education, offering courses that instill research skills and ethics, and further improving courses and subjects, with the goal of developing research capabilities that lead the world in terms of multidisciplinary integration and industry-academia cooperation.

- OWe propose a new concept for dentistry, "Interface Oral Health Science," based on which we will promote and propagate cutting-edge research, making the best of both the unique and universal qualities of dentistry. We aim to form a hub for multidisciplinary cooperation and integration, in order to bring together diverse intelligence with global perspective. While educating the next generation of researchers and educators in dentistry, we also strive to create new dentistry-related studies and put the results into practical use in society.
- Oln order to realize the university's vision of "Achieving World-Class Status and Leaping Ahead," we pursue education and research based on global cooperation, as represented by our Double-Degree Programs. We will further improve the environment for multidisciplinary education and research based on Interface Oral Health Science, while establishing support systems that allow all faculty members and students to benefit from what we offer.

[Strategic Focus and Major Policies]

1. Creating a center for practical studies and applied science research in dentistry

Being a global leader in dentistry as both practical study and applied science, we will pursue multidisciplinary studies, create new domains, and devise new medical equipment and technology to be applied in clinical practice. Toward this objective, we will vitalize and expand the interface projects, e.g., creating a center for tooth regeneration research, and establishing the field of dietary science, a new branch of science that aims to understand human dietary activities from the perspectives of human biology and food. We will also ensure the participation of all the students and faculty members in cutting-edge research.

- 2. Creating a center for training global dental researchers and educators
- We will reform the mindset of our teaching staff by engaging in educational Faculty Development (FD), overseas posting of faculty members, and evaluating the teaching performance of faculty members. In order to secure capable and talented young scholars, we will utilize external funds to actively employ faculty members beyond the pre-fixed number. When and where it is possible, we take measures to add these faculty members to the pre-fixed faculty pool, and will thereby ensure the employment of talented young faculty members and help them along their career path. We will actively launch new research projects primarily managed by young researchers.
- 3. Creating a center for training dentists as leaders of the next generation in dental healthcare

Even as we seek to become a leader in global dentistry following the global standard through exchange programs with the world's top-ranking dental departments in Europe and the United States, we are also designing an Asian model for dental education rooted in Asian ethnic and cultural characteristics, and training our faculty members in this model through FD activities and inter-university lectures and practices. We will promote participation of graduate and undergraduate students, including students from overseas, in international symposia and conferences held by (for example) the interface and multimodal projects, and overseas posting through the School's own programs and participation in the Short Stay/Short Visit (SSSV) program. Thus, we will provide high-level education to nurture dentists as highly specialized professionals and actively guide students toward becoming dental researchers and educators.

4. Expanding the Liaison Center for Innovative Dentistry for further globalization of education and research

We will expand the Liaison Center for Innovative Dentistry as a coordinating organization to further globalize education and research. Utilizing the School's personnel expenses and various external funds, we will secure full-time faculty. Time-sharing by the faculty members and postings on the School account will be considered for the shortfalls.

5. Creating a center for industry–academia and community–academia cooperation

We will continue to contribute to improving regional oral healthcare in cooperation with the Miyagi Prefecture and Sendai City governments and supporting national oral healthcare measures through personnel exchange with the Ministry of Health, Labour and Welfare. We will provide uninterrupted support for local governments, e.g., disaster victim support at the temporary housing in Iwanuma City, as part of the projects launched by the Japan Association of National Universities for recovery from the 2011 Great East Japan Earthquake and restoration of Japan. The Regional Dental Healthcare Development Office in the Regional Cooperation Section of the Liaison Center for Innovative Dentistry will take the initiative in these support activities. We will advance industry–academia cooperation by actively participating in projects launched by the Ministry of Health, Labour and Welfare and the Ministry of Economy, Trade and Industry.

6. Playing a leading role in creative reconstruction following the disaster, and establishing systems and models to respond to large-scale disasters With the Division of Disaster Oral Healthcare Science (International Research Institute of Disaster Science), Division of Dental and Digital Forensics, and Center for Environmental Dentistry serving the core functions, we will play a leading role in creative reconstruction following the 2011 Great East Japan Earthquake and Tsunami, and will establish systems and propose models to respond to anticipated large-scale disasters by systematizing empirical knowledge obtained from the last disaster and engaging in practical training.

Graduate School of Pharmaceutical Sciences / Faculty of Pharmaceutical Sciences

[Faculty's Vision (Basic Philosophy and Mission)]

Our vision will be to improve the world health by training pharmacists, pharmaceutical scientists, researchers, and engineers by advancing knowledge and technology through worldleading research. Our mission is to educate students to become the next generation of leading pharmacists in the field of human health care, and leading pharmaceutical scientists and engineers in the field of drug discovery.

[Organizational Policies for Reinforcing Functions (-2017)]

- OWe are committed to further developing the faculty's fundamental philosophy of the School and the Faculty to foster leading pharmacists and pharmaceutical healthcare and science researchers, as well as excellent researchers and engineers in the field of drug discovery. In accordance with this principle, we will further enhance education for pharmacists at both the undergraduate and graduate levels, while advancing research in the related fields of pharmaceutical healthcare and sciences. In addition, we will train talented individuals in the field of drug discovery by promoting wide-ranging and cutting-edge studies in the materials and life sciences.
- Oln order to realize the university's vision of "Achieving World-Class Status and Leaping Ahead," we intend to increase the number of international students by increasing the number of lectures given in English in both our undergraduate and graduate courses. We will also strengthen our international exchange programs, in order to provide our students and faculty with more opportunities to study abroad and have international experiences. We will facilitate higher-quality research activities through active recruitment of young, female, and foreign teaching staff, as well as by inviting world-class researchers from abroad.

[Strategic Focus and Major Policies]

1. Developing leading pharmacists and advancing pharmaceutical healthcare and science studies

By planning and implementing high-level education and research programs, we will advance high-quality pharmaceutical healthcare and science research and educate leading pharmacists with strong research skills. We have identified the following three fundamental education programs for the next 4 years: (1) "Collaborative Development of Advanced Practical Education Program to Train Pharmacists in Leadership" (Ministry of Education, Culture, Sports and Technology (MEXT), FY2010–2015); (2) "Training and Education of Super-generalist Pharmacists" (MEXT, FY2013–1018); and (3) "Initiative for Innovative Drugs, Medical Equipment, and Commercialization of Regenerative Medical Products" (Ministry of Health, Labour and Welfare, FY2012–2016).

In advancing the educational programs listed above, we will establish a system for training practice-oriented pharmacists by augmenting the faculty postings for clinical education in the Graduate School (for this purpose, we plan to inaugurate the "Research and Educa-

tion Center for Pharmacotherapy Optimization and Prescription Designing Assistance"). To this end, we will plan, develop, and implement educational programs for juniors, seniors, and graduate students, as well as establish post-graduation residency programs and other opportunities. We will also provide education and conduct research to develop capabilities to grasp the needs of actual medical practices, find appropriate solutions, and deliver them in order to achieve practical applications. In order to foster pharmacists who can meet global standards, overseas internship programs and short-term overseas training programs will be developed and implemented. In order to practice evidence-based medicine, we will promote cutting-edge research on pharmacogenomics (genetic information) and pharmacometabolomics (metabolite information), both in terms of analysis and utilization. Furthermore, we will train pharmacists with superior research capabilities acquired by achieving results in the search for biomarkers and other studies that contribute to proper use of medical and pharmaceutical products.

2. Fostering talent and advancing cutting-edge research in drug discovery We will educate excellent researchers and engineers who can contribute to the drug-discovery industry, Schools of Pharmacy, and research institutes, while advancing high quality cutting-edge drug discovery studies. We have identified the following two fundamental programs for the next 4 years: (1) a University initiative for the enhancement of global competitiveness: "Cutting-Edge Science and Technology in Chemistry and Materials: A Cooperative Asian Education Gateway for a Sustainable Society" (MEXT, FY2011–2015); and (2) "Promotion of Open Innovation for Drug Discovery by Exploiting Large-scale Drug Discovery Research Infrastructure" (MEXT, FY2012).

In implementing the programs listed above, we will conduct cross-laboratory education and research in order to effectively integrate research on the properties of materials (e.g. drug-synthesis methods and physical properties) with studies on interactions between organisms and drugs (e.g., drug efficacy and side-effects), and thereby train talented individuals with knowledge of both fields. Regarding program (1) above, in collaboration with Nagoya University we aim to establish an international education center with universities in China and South Korea. We will mutually exchange graduate students to conduct joint research, e.g., for the discovery of new chemical reactions and new materials and for the development of new measurement methods, which will form the basis of drug discovery science. This will also help develop global talent and drug-discovery studies. The target number of graduate students in this exchange program will be around 10 per year. In program (2), a more direct approach will be taken to encourage research targeting the development of new drugs.

In implementing these programs, we will fully exploit the characteristics of the Graduate School of Pharmaceutical Science, which comprises researchers in three different specialties (chemistry, life science, and pharmaceutical healthcare sciences), in order to establish an interdisciplinary research system that combines these three domains. By actively involving graduate students in these studies, we aim to train individuals with superior drug-discovery talents.

Graduate School / School of Engineering

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Graduate School and School of Engineering pursue world-class research and education activities based on our guiding principles of "Research First" and "Open Doors" and our spirit of "Practice-Oriented Research and Education." We also apply our research achievements to solving issues in society and training future leaders, thereby contributing to the development of a safe and affluent society.

[Organizational Policies for Reinforcing Functions (-2017)]

- ○[Profile of People to be Trained] Through a new interdisciplinary approach in collaboration between the Graduate Schools, Research Institutes, and Inter-Departmental Institutes for Education and Research, we train advanced engineers with vast knowledge. We also train leaders with high levels of creativity and research ability.
- ○[Direction of Educational Reform] We will advance our systematic reform towards unification of the undergraduate and graduate programs, based on the achievements of our pioneering educational programs. These efforts will be undertaken with the appropriate motivation, clear step-by-step goal-setting, and a global mindset. We will train engineers with the ability to discover and solve problems based on a systematic understanding of academic fields, and who have the enthusiasm to contribute to society from an international perspective.
- ○[Direction of Research Activities] We will leverage our outstanding research achievements in all areas of engineering in order to improve our advanced research programs and achieve world-class status. These efforts will be undertaken through multiple graduate schools and research institutes that characterize our engineering research.
- O[Contribution to Industry and Society] We will leverage our experiences in contract and collaborative research projects, as well as a large number of patents, to further our initiatives in applied research aimed at sustaining Japanese industries.
- ○[Retraining for Professionals] We will provide opportunities for working professionals to acquire the advanced technologies required by corporations. To this end, we will accept those professionals to our Ph.D. programs and engage in collaborative research projects.
- O[Connection and Collaboration with Elementary and Secondary Education] We will further promote educational collaboration with regional elementary and secondary schools, so that young students become interested in engineering.
- ○[Revitalization from the Great Earthquake] As a Comprehensive University located at the center of the afflicted region by the Great Tohoku Earthquake and Tsunami in 2011, we will strive to revitalize the affected areas and to rebuild Japan by drawing on all our engineering expertise.

[Strategic Focus and Major Policies]

1. Profile of People to be Trained

We will train the following types of professionals, who will serve as the foundation of the next generation of Japan by providing solutions to modern global issues facing society and driving the creation of a truly sustainable society.

- (1) People who possess the ability to solve issues based on a systematic understanding of academic fields, and who are enthusiastic about contributing to society. They understand the importance of diversity and can compare and learn various values to provide solutions appropriate for a rapidly changing society from an international viewpoint (Bachelor's and Master's degrees).
- (2) In addition to (1), we will train highly creative researchers who possess the ability to discover issues and learn from thorough trial-and-error processes, and who also have vision and insight that can be applied to areas outside their own (Ph.D. degrees).
- (3) In addition to (1), we will produce advanced innovators and global leaders who can lead innovation in society, based on their high levels of strategic ability and vision.

2. Direction of Educational Reform

The Engineering Education Center will be established within the faculty and graduate school of engineering as an affiliated institution aimed at driving educational reform. This will establish the unified six-year educational program and continuous PDCA cycle, based on the educational reform grand plan. This arrangement will effectively advance the following major strategies.

- (1) We will appropriately motivate students by letting them experience the "real thing," based on our educational principle of "Research First," so that students understand the values of advancing science and technologies and continue to have a passion for research.
- (2) We will design a systematic educational program that promotes awareness of global issues and long-term vision. The program will cultivate not only specialty knowledge and communication skills, but also the abilities to grasp comprehensive perspectives, plan, work as part of a team, and understand global challenges and information.
- (3) A system for step-by-step evaluation of achievement will be introduced to assist students in systematically organizing their specialty knowledge so that it becomes useful. We will also help students to develop their command of English and encourage them go abroad.
- (4) Students will be assigned to laboratories engaged in with unique advanced research, so that they can learn how to face challenges by experiencing success after failure, and by experiencing the process of trial and error in situations with no clear right answer. Collaborative research projects with international research institutes will further drive student training.

(5) We will use the FD system to encourage faculty members to gain a sense of accom-

TOHOKU UNIVERSITY GLOBAL VISION

plishment in education by achieving significant improvement in the delivery of lectures and students' comprehension.

- (6) We will assign experienced faculty members to the student guidance office in order to provide detailed and appropriate guidance to students.
- (7) We will reform the entrance examinations (undergraduate and graduate programs) and roll out a strategic publicity campaign to attract excellent students who are strongly interested in science and technology.
- (8) We will endeavor to increase the number of excellent and diverse international students by improving our global presence through an international publicity campaign.

3. Direction of Research Activities

The Research Planning Center will train students who will lead the next generation of researchers, based on the major strategies described below. This will further increase the attractiveness of our university, which upholds the vision of "Research First," and provide solutions to social challenges such as energy and environmental issues, declining birth rate and the aging population, safety and security, and revival of Japan's manufacturing industries. Thus, these efforts aim to create a truly affluent and sustainable society.

- (1) We will continue to encourage creative research that will lead the world by pursuing the truth and implementing the results in society.
- (2) We will launch a system for providing a comprehensive view of the issues in society and communities to identify new research projects to pursue, so that we can design our research strategies.
- (3) We will leverage our outstanding research achievements in all areas of engineering in order to launch a system for promoting research projects in new and interdisciplinary fields, based on our research strategies, in areas including life sciences, science and engineering, agriculture engineering, and medical engineering.
- (4) We will accelerate research visits by our young researchers to strategically important international research institutes, thereby strengthening and enlarging our future research foundation.
- (5) In collaboration with the Center for International Exchanges, we will further improve our international presence by actively conducting collaborative research with international research institutes and engaging in international publicity.
- (6) In response to concerns about the declining amount of research time available for our faculty members over the last several decades, we will aim to construct an attractive research environment so that faculty members can immerse themselves in their research activities.
- (7) We will consider reforming our human-resource strategies to effectively increase the number of positions for young faculty members, and to provide a sense of security for young people who would like to become part of our faculty.

4. Contribution to Industry and Society

We will pursue the following major strategies, based on our philosophy of Practice-Oriented Research and Education, with the goal of creating a truly affluent sustainable society by implementing basic research results.

- (1) We will strengthen systematic coordination with industries and regional communities in order to promote collaborative research between industry and academia, as well as contract research, thereby promoting translation of our research results into industrial innovations.
- (2) We will utilize intellectual property strategically in order to secure Japan's technological leadership in relation to other countries.

5. Retraining for Professionals

We will pursue the following major strategies based on our vision of Open Doors.

- (1) We will encourage working professionals to study further by accepting more working professionals into our Ph.D. programs. We intend to attract these individuals with our outstanding research achievements in all areas of engineering.
- (2) In order to make use of our advanced research results to educate working professionals, we will host seminars and presentations in conjunction with our industry partners. We will also publicize these activities and strengthen industry-academia collaboration in the field of education.

6. Connection and Collaboration with Elementary and Secondary Education

(1) We will deepen our collaborative relationship with elementary and secondary schools in our region by offering science camps and providing presenters for lectures at these events. This will cultivate researchers who will lead the next generation by intensifying young people's interest in science and engineering.

7. Revitalization from the Great Earthquake

(1) We will engage in projects organized by the Institute for Disaster Reconstruction and Regeneration Research of Tohoku University and their Reconstruction Action 100⁺.

- (2) Since July 2014, we have offered the Qatar Friendship Fund Hall and Science Campus for Children, "A Project for Children Who Will Lead the Future in the Region," for elementary and junior high school students in the regions affected by 2011 Great East Japan Earthquake . This experiential science campus for children aims at cultivating children's interest in science and manufacturing through hands-on science labs, lab tours, science camps, science shows, and study counseling.
- (3) Tohoku University's Research Center for Remediation Engineering of Living Environments Contaminated with Radioisotopes will lead the food contamination inspection, and also perform researchers related to measurements of air dose and decontamination of soil. We will collaborate with other universities to conduct decontamination researchers and practical education involving graduate students.

(4) We will support organized research and education systems that span multiple special-

izations and fields, in order to train people who possess comprehensive views on the safety of nuclear power generation and decommissioning of reactors of Fukushima Nuclear Power Plant.

8. Creation of an Ideal Workplace by Empowering Organizations

We will continue to conduct the following initiatives to revitalize organizations so that we can create an ideal engineering workplace where faculty members, administrative office staff, and technical staff can feel a sense of achievement, pride, and happiness.

- (1) In the spirit of cooperation among faculty members and administrative staff, we will drive initiatives aimed at reforming the attitudes of faculty members, securing time for research, and develop a discretionary labor system for administrative staff.
- (2) We will create a culture in which administrative staff can streamline jobs and increase the efficiency of their own work.
- (3) Technical staff who are responsible for inheriting and creating technologies will find values and confidence in their own technologies as then tackle even more challenging tasks, thereby entering into a "virtuous cycle." This will empower technical staff organizations and strengthen support for creative research activities.
- (4) We will continue building a safe, secure, and lively environment that is suitable for educational excellence and creative research by reviving the Aobayama Sports Facility, establishing and utilizing the learning commons at the Engineering Branch of the Tohoku University Library, enlarging access roads to the campus, and installing a safety confirmation system.
- (5) Association of Leading Women Researchers in Engineering (ALicE) will lead development of a natural science and engineering research environment that is ideal for women. To this end, ALicE will come up with a grand design so that female researchers and students can continue their work into the future.
- (6) We will prepare the budget required to fulfill the above initiatives.

Graduate School of Agricultural Science / Faculty of Agriculture

[Faculty's Vision (Basic Philosophy and Mission)]

OAgriculture is the very basis for human survival. In other words, it is the science that forms the basis of bio-industries that address issues related to food, health, and the environment. The basic mission of Graduate School of Agricultural Science / Faculty of Agriculture is to contribute to the community and the world by providing the world's most advanced research findings and cultivating personnel who can play leading roles in agriculture by promoting research and comprehensive education in this field.

[Organizational Policies for Reinforcing Functions (-2017)]

- Oln undergraduate courses, we aim to cultivate students with the excellent ability to understand a broad range of knowledge and technologies related to food, health, and the environment. In addition, we seek to nurture students so that they will acquire the broad agricultural perspective that is necessary to develop concepts for future agriculture, e.g., "agriculture as communication between human beings and the environment."
- Oln our graduate courses, we seek to train professionals who have acquired expertise and techniques related to food, health, and the environment, and who are capable of performing world-class research on food resources, food functionality, and advanced agriculture that utilizes biological functions.

[Strategic Focus and Major Policies]

1. Relocating the new campus smoothly and improving facilities and equipment

We will design a phase-II building that will complement and enhance the existing concept for the new campus plan. We will develop a relocation plan and implement it in such a way that relocation work will be completed within the planned period, and our education and research activities at the new campus will commence at the intended time.

This relocation is a good opportunity to design a campus that will serve as a model for future campuses. In addition, we will create a campus that can "promote coexistence between human beings and environment" by taking appropriate measures. For example, we plan to use wooden interiors, not only in research buildings but also in the lecture, health, dining, and recreational facilities, in order to provide an agricultural landscape that includes places where students and staff members can spend time in contemplation.

2. Securing excellent students to undergraduate and graduate courses To attract excellent students to our undergraduate and graduate courses, we will inspect our current entrance examination system, conduct post-entrance and post-graduate follow-up surveys, and make necessary modifications. We will also proactively reinforce the connection between high schools and our university, improve the contents of the open campus, and publicize the benefits of agriculture to society at large. In concert with the introduction of TOEFL to the graduate school entrance examination, we will consider measures to improve graduate school students' English abilities. In addition, we will provide support for continuing education through our "doctor support system," and also improve our acceptance system for adult students and students from abroad. To recruit excellent doctoral students, we will engage in a proactive public-relations campaigns aimed at encouraging students to participate in the Innovative Leaders Platform, as well as to apply for admission into the Institute for International Advanced Research and Education.

3. Promoting agriculture that can meet society's needs

We will expand the body of agricultural knowledge so that it can better meet society's needs, including production of high-quality food (i.e., food that tastes good or has useful functions), enhancement of the multi-functional roles of agriculture including protection of our environment, and contribution to post-earthquake reconstruction. We also aim to proactively engage in large-scale research projects in the aforementioned areas, with funding and support from local and national governments. Under the Comprehensive Strategy on Science, Technology, and Innovation (approved by the Cabinet on 12th June, 2013), which is led by the Japanese government, various measures are currently being implemented to protect regional resources and achieve a society with good health and longevity through interdisciplinary collaboration between medicine and agriculture, as well as inter-ministry collaboration. We aim to contribute to such activities because our graduate school has sufficient human resources and academic breadth to pursue these goals.

- 4. Developing a stable mechanism for operating undergraduate education In coordination with instructors from other graduate schools, we have prepared a curriculum for undergraduate education. This initiative also contributes to promotion of intergraduate school collaborations. Thus, we hope to develop a mechanism for achieving continuous evolution of undergraduate education in the future; meanwhile, inter-graduate school collaborations will bring about further development of both graduate schools.
- 5. Enhancing our support system for internationalized education We will prepare an environment in which young instructors can more actively leverage the sabbatical leave system, in order to encourage participation by these young scholars in international exchanges. We will also consider measures to support young instructors' research and education activities during their sabbatical leave period. We are enhancing our support systems for the acceptance of students, researchers, and instructors from abroad, as well as promoting opportunities for students in the undergraduate and graduate courses to study abroad.

Graduate School of International Cultural Studies

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Graduate School of International Cultural Studies is engaged in interdisciplinary and comprehensive education and research activities on regional cultures, global coexistence, and languages, all from an international perspective. We also aim to foster the training of professionals with expertise and advanced research capacities who can respond to ongoing globalization, succeed domestically and internationally, and lead international projects.

[Organizational Policies for Reinforcing Functions (-2017)]

- OWe adhere to our founding principle of training professionals who will be capable of succeeding in international fields. We continue to expand our world-class systematic education framework in response to ongoing globalization. We also aim to train professionals with international sophistication and sensibilities, including communication skills, understanding of different cultures, high levels of expertise, and advanced problem-solving capacities.
- Owe provide multifaceted and advanced research projects in three domains: various regional studies of world cultures; studies of global issues related to coexistence of societies; and linguistic theory and its applications that support regional and global communities. We seek to promote interdisciplinary and comprehensive research activities, leading to the resolution of issues that require global-level responses.

[Strategic Focus and Major Policies]

- 1. Building a new education curriculum in response to ongoing globalization We aim to reorganize our education and research framework as logically appropriate for each area of expertise. The three major frameworks described above will be reorganized into three domains: regional cultural studies, global coexistence, and comprehensive linguistic studies (to be initiated in 2015). In each domain, we will design and organize classes according to a systematic and step-by-step approach. For classes within each general topic, students will be given flexible assistance by faculty, including detailed instructions on research and paper writing, to prepare them for the degree-awarding program. In the domain of comprehensive linguistic studies, we are planning to develop our "International Graduate Program in Language Sciences" that admits students in the fall and offers classes in English, so that we can offer a wide variety of English classes and examine the feasibility of fall admission.
- 2. Cultivating foreign-language education capacity in partnership with the Institute for Excellence in Higher Education

Since its foundation, the Graduate School of International Cultural Studies has led Liberal Education, especially foreign language education. We continue to seek an ideal way of

working with the Institute for Excellence in Higher Education that would be introduced as part of the priority structure of the entire university. We will also develop an education field that could interface with postgraduate education (2015 and onward). In particular, we aim to develop a consistent doctoral program that reinforces foreign-language education capacity at school, as well as a foreign-language program utilizing ICT (Information and Communications Technology).

3. Establishing and developing a base for comprehensive Japanese studies from an international perspective

In 2015, the Department of Comparative Cultures and Japanese Studies will be established under the domain of regional cultural studies. This department will be taught from two perspectives, "the world within Japan" and "Japan in the world," and will offer comprehensive Japanese studies from two viewpoints: the acceptance and influence of foreign cultures in Japan, and the acceptance of Japanese culture overseas. Unique features of this department will include the introduction of comparative analysis and an emphasis on modern Japanese studies. To reinforce the human resource side of this program, we will invite world-class scholars of Japanese Studies from abroad, as well as introduce other measures.

4. Pursuing world-class linguistic science studies

Our language studies departments have achieved world-class research results. By integrating our language-related departments into one unified domain (from 2015 onward), we will further improve our research capabilities. Research activities in this domain will be linked to the academic results of the Research Center for Language, Brain, and Cognition, with the aim of creating a center for language studies in this field, and with the vision of "Achieving World-Class Status and Leaping Ahead" in mind (from 2016 onward). Over the course of this process, we will also pursue international joint research projects with the world-renowned universities such as Peking University in China and Chulalongkorn University in Thailand (starting in 2015).

5. Reinforcing social partnerships and promoting industry–academia partnerships through studies on global coexistence

We are contributing to the reconstruction of local communities after the Great East Japan Earthquake by steadily advancing projects proposed in the "Reconstruction Action 100+." These activities fall under the domain of global coexistence studies, which consists of a combination of liberal arts and sciences ranging from economics, political science, environmental sciences, resource studies, and engineering. At the same time, as part of our international joint research activities, we are promoting industry-academia partnerships in the fields of waste recycling and effective use of resources.

Graduate School of Information Sciences

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Graduate School of Information Sciences will evolve the information science into a synthetic, interdisciplinary and advanced academic field that bridges humanities, social sciences, and natural sciences. The graduate school will seek to plow back its research results to society. For the purpose, we will give students every skill and interest to tackle new problems by capitalizing on their knowledge of information sciences, so that they can develop new applications in their fields and lead a future society driven by information technology.

[Organizational Policies for Reinforcing Functions (-2017)]

- OWe will redefine "information sciences" as an interdisciplinary field of science that covers not only the study of how to improve the transmission and processing of information itself, but also the study of how to interpret and valuate the various types of information related to humanity and society. Based on this new definition, we will systematize information sciences and provide a structured educational program that will lead to the creation of research innovation and cultivation of individuals who can take a leadership role.
- OIn the pursuit of Achieving World-Class Status and Leaping Ahead, first of all, we faculty members will deepen our own research fields and produce more and more conspicuous academic achievements that deserve international acclaim. Second, we will train young researchers of international caliber who will lead the next generation of information scientists. Third, by broadening the horizon of each research field through interactions with related fields, we will cultivate an interdisciplinary mindset in each faculty member and their students.
 OFurthermore, we will send out to the world the message of how the outcomes of the newly defined "information sciences" enable us to flexibly adapt to the diverse issues we are confront-
- ing in modern society. In this manner, we seek to contribute to the realization of a more affluent and secure society in which all people can enjoy the benefits of the information sciences.

[Strategic Focus and Major Policies]

1. Promoting Interdisciplinary and Synthetic Research to Create a New Information Science

Our graduate school was founded based on the principle of promoting and encouraging interdisciplinary and synthetic research, which together are expected to create a new field of information science. For this purpose, we will financially support establishment of several prioritized research projects, research centers, and research units centered around our faculty members. Lectures and seminars will be held in order to disseminate advanced information sciences and re-invest our research results into society. We will publicize our academic achievements more actively though the graduate school website and our peerreviewed international journal, which is available on-line. These publications will be linked to the all-campus academic information database, so that our faculty members' aca-

demic achievements will be publicized constantly and immediately. We will support these research activities by hiring outstanding young faculty members, providing them with appropriate financial support, and allowing them as much time as possible for their research activities. We will also hire people whose interdisciplinary research can significantly influence society from the standpoint of human-social information sciences.

- 2. Establishing a Global Center for Utilizing 'Big Data' and Training Researchers We aim to become a global center for training young researchers who can utilize big data to tackle major challenges in various fields of society, including the commercial, governmental, and medical communities. For this purpose, we will first offer academic courses related to big data science, including statistical analysis and machine learning. Second, we will provide hands-on labs using actual big data collected from society. Third, we will establish an educational environment in which graduate students are trained in friendly rivalry with each other and are inspired to become industrial innovation leaders who can utilize big data to analyze our IT-driven society.
- 3. Applying Academic Achievements to Real Social Problems

In order to activate collaborative research projects in coordination with industries and municipalities, we will strongly support collaboration between our faculty members and public or private organizations outside our institute. We will hire URAs (University Research Administrators) who will refine research ideas and help researchers to pursue projects that have large potential impacts on society and will attract major national or international project grants. We believe that the interdisciplinary mindset of those who engage in information sciences will help to promote interactions between academic fields and the real world.

4. Preparing an Environment that Enhances the Effects of Interdisciplinary and Creative Education

Taking advantage of our graduate school's diverse specializations and students, we will provide unique educational programs that help students cultivate and interdisciplinary and specialized mindset. More specifically, we will develop several courses that offer specialized education, and also attempt to reorganize and enrich our curriculum in order to achieve an interactive learning environment in which creativity and problem-solving abilities are encouraged. In order to respond to the demands of industry and society, we will develop an educational system in which thesis supervisors nurture the adaptability and flexibility of students in Ph.D. courses.

5. Positive Acceptance of Students with Diverse Capabilities from Japan and Abroad

We will make information about our entrance examinations on our website more accessible to the prospective applicants. In particular, the International Liaison Office of our graduate school will play a central role in inviting a growing number of excellent foreign students from around the world. For this purpose, we will more actively publicize our research results and other activities through our website.tively publicize our research results and other activities through our website.

Graduate School of Life Sciences

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Graduate School of Life Sciences develops competitive research and education systems in various fields spanning molecular biology, cell biology, neuroscience, organismal biology, ecology, and the environment. In each of these fields, the School generates and disseminates world-class leading-edge discoveries. We are working to resolve the critical problems faced by humankind. To this end, we are fostering leading researchers and technicians who are capable of succeeding at the vanguard of life sciences, and who have a proper sense of bioethics, advanced expertise, and an international mindset.

[Organizational Policies for Reinforcing Functions (-2017)]

- OWe seek to generate advanced knowledge and technologies in the field of life sciences, and to disseminate the resultant information at the global level. Life science is the science of sustaining and improving human lives. From this perspective, we promote interdisciplinary educational programs and research across different fields, in order to adopt and develop basic principles aimed at resolving various problems. In doing so, we aim to foster talented individuals with global capabilities, in partnership with related programs inside and outside the university.
- Oln order to promote the advanced education and research activities that are essential for "Achieving World-Class Status and Leaping Ahead," we are building a foundation for an international center for life sciences by developing facilities for education and research, encouraging unique life science education and research, and building partnerships with related institutions inside and outside the university. At the same time, we actively promote policies that lead to the creation of an academic organization that attracts young researchers and students who will aid in realizing this vision.

[Strategic Focus and Major Policies]

1. Forming the core of life sciences

The existing campuses are far away from each other, and the space for education and research is saturated. We seek to resolve this issue and reinforce graduate-school functions by forming a life sciences core at Tohoku University and accelerating its development. To this end, we hope to build a new 9000-m² building in the Katahira campus (construction will be complete within two terms). Aging research facilities and guesthouses at the Research Center for Marine Biology, Asamushi, will be repaired, and a new environment will be created with the goal of promoting a more favorable education and research setting. We will expand open spaces and promote the pursuit of new projects, while encouraging the development of the latest education and research equipment and facilities.
Thus, we will engage in activities as an international center for life sciences by increasing the efficiency of education and research and by reinforcing our organizational functions.

2. Building and developing educational programs to foster talented individuals with a global mindset in response to social needs

Based on our individual character, as defined by many diverse fields and academic achievements, we will reinforce our global leadership program in order to prepare our students to address important social problems related to the life sciences. Furthermore, we will promote the Center for Comprehensive Brain Science Studies and the Promotion of Education, which was established to adopt and develop the reputed GCOE program, the Center for Ecological Adaptation, as well as the "International Excise Curriculum for Development and Implementation of Practical Programs for Utilizing Diverse Marine Organisms" program, which aims to create a center for marine biology in Tohoku. In doing so, we will encourage practical education; overseas internships and assignments; and exchanges among frontline researchers, leaders from industry, students, and young researchers inside and outside Japan.

3. Leading advanced life sciences with world-class science and returning the outcomes to society

We strive to further develop the life sciences and achieve a higher rank in the "College and University Ranking" by promoting world-class research projects and creating a core group that combines distinctive new fields. To do so, we will form a new core group that incorporates the fields of chemistry, microbiology, botany, and cell and developmental biology. These fields are drawing attention as a result of their remarkable performance and achievements, and these efforts will form the basis for new projects. We are pursuing a greater understanding of the roles of such advanced research projects in society. In addition, we are promoting partnerships between industry and academia aimed at applying research results and improving social engagement, including efforts related to post-disaster reconstruction.

4. Establishing and promoting an axis of life-science research projects through flexible restructuring of research fields

We will create new projects by categorizing various fields into multiple clusters, and then reorganizing them in a flexible and interdisciplinary manner (i.e., by creating a working group). By establishing administrative centers for each new project, we will build partnerships with related faculty, as well as agencies and academic institutions in Japan and abroad. Each cluster will play a central role in designing and applying new projects, designing international symposiums, sourcing external funding, and networking with related institutions, faculty, and fields in order to support the creation of academic centers.

5. Toward an appealing graduate school that aims to be a center for life science education and research

We will provide a place where students and researchers from inside and outside Japan can gather and pursue life sciences studies, and where faculty members can succeed with optimism and pride. We will attract and retain excellent students and international students through student/job/career path support, international courses in life sciences, and stronger public-relations activities. We are also building a system in which students, faculty members, and alumni can engage with each other, allowing members of each group to enjoy support from different sources. We are encouraging strategic staff allocation based on the goals of creating an optimum level of competition, developing an environment where young faculty members can play active parts as successors and succeed in their fields in Japan and overseas, and recruiting administrative staff and professionalizing their jobs. We will also increase the numbers of female and international faculty members.

Graduate School of Environmental Studies

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Graduate School of Environmental Studies aims to establish a foundation for solving environmental problems, ranging from the regional to the global level, and supporting the sustainable development of society. Our mission is to generate leading-edge research and foster leadership figures through advanced research in the natural and social sciences, and the education they support, with the ultimate goal of developing local communities and establishing peace and prosperity throughout the world.

[Organizational Policies for Reinforcing Functions (-2017)]

- OWe are further developing environmental education through a combination of liberal arts and scientific approaches, in order to embody and further develop our faculty's vision of sharing environmentally conscious leading-edge knowledge and building a society that promotes sustainable development. We also promote advanced and multifaceted research education in the fields of energy and resources, with special focus on energy issues, renewable energy, environmentally conscious marine-resource development, and building the foundation for a recycling-oriented society.
- OWe will develop a green and safe campus and research framework as a top-tier international research center, which is essential for Achieving World-Class Status and Leaping Ahead." We consider ourselves part of a core institution for environmental research and education, which lays the foundation for an environmentally conscious society. Therefore, we are actively seeking partnerships with leading international universities around the world and research institutions in Japan, as well as cooperation with related faculty and research labs within the university.

[Strategic Focus and Major Policies]

1. Establishing a graduate curriculum that fosters global environmental leaders

Building on the success of the Environmental Leadership Program Strategic Energy and Resource Management and Sustainable Solutions (2010–2014), Strategic Environmental Management and Sustainable Technology Solutions (2010-2014), we reorganized existing majors within environmental studies to create more permanent education systems. We also aim to mainstream the International Program for Environmental Sustainability Science, based on the success of Global 30 (IPESS: International Program for Environmental Sustainability Science).

2. Establishing an education center based on the Future Earth program Future Earth (FE) is a comprehensive research program on changing the global environment, promoted by the International Council for Science (ICSU) and other organizations. As the global organization for FE is being established, we aim to become one of its educational centers in Asia.

3. Promoting strategic research on energy and resource recycling

We recognize the need for a transition from a fossil fuel-dependent society to a lowcarbon society. In this context, we understand that the importance of renewable energy is being increasingly emphasized, especially after the Fukushima nuclear disaster caused by the Great East Japan Earthquake and Tsunami in 2011. Based on the results of our energy and recycling research so far, we are promoting further research and development that establishes a foundation for technologies that utilize renewable energy and support recycling-oriented social systems. We will apply for grants from various institutions to secure research funding, and work toward expanding support from Grants-in-Aid for Scientific Research and our research budget for joint research and commissioned research projects.

4. Developing a smart campus that Japan can be proud of

We are seeking to establish a smart building at the Graduate School that would become a model for low-carbon smart communities. We will share the results of this attempt with the rest of Japan and the world, in order to introduce a world-class, low-carbon, energy-saving smart campus powered by renewable energy and stand-alone energy systems.

5. Creating a new industry based on the results of sponsored courses In one of our sponsored courses, we are expecting significant results that could change the world for the better. Specifically, we anticipate the development of field-emission planar luminance devices using high crystalline single-walled carbon nanotubes, as well as the development of negative-electrode material that could dramatically improve the capacity of lithium ion secondary batteries. Over the next 4 years, we will commercialize these products in partnership with a company. In another sponsored course (Multidisciplinary Research on the Circulation of Waste Resources), we are also working to commercialize our results on resource recycling.

Graduate School of Biomedical Engineering

[Faculty's Vision (Basic Philosophy and Mission)]

OAs the first Graduate School of Biomedical Engineering in Japan, we will lead progress in biomedical engineering in Japan and generate world-class research. Under the School's fundamental philosophy of "exploring the wonders of life by utilizing expertise in engineering and contributing to the welfare of human society through innovation in medical science and treatment," we aim to build a safe and secure society through education and research leading to the innovative development of medical science and treatments based on engineering that bridges science and daily life.

[Organizational Policies for Reinforcing Functions (-2017)]

- OFollowing the tradition of Tohoku University, which initiated biomedical engineering research and continues to promote this field today, we will further expand education in biomedical engineering, with the goal of pursuing cutting-edge and multifaceted studies in biomedical engineering, including the development of innovative medical devices.
- OWe will prepare and provide the world's best educational environment and establish a support system to encourage practical application of research results. These efforts are indispensable for realizing the university's vision, "Achieving World-Class Status and Leaping Ahead." As the only graduate school working as a strategic center to facilitate and advance cooperation between medical science and engineering in Japan, we will organically combine collaborations between medicine and engineering, both inside and outside the university, to accelerate the robust development of medical science.

[Strategic Focus and Major Policies]

1. Supporting the development of medical devices and promoting their practical applications

Utilizing the technological seeds that our School possesses, we will develop medical devices to be the first in Japan and establish clear roadmaps for their practical applications. We will also enhance the university-wide development support system, with the Medical Science Promotion Committee serving as its core.

In order to nurture long-range perspective and business abilities, and to benefit society through the results of our research, we will provide students with education based on our activities in the "Initiative for Commercialization of Innovative Drugs, Medical Equipment, and Regenerative Medicine Products" (Ministry of Health, Labour and Welfare, FY2012). This effort corresponds to "leading-edge and creative curricula to face modern challenges" and "education transcending the graduate school divide." We will also organize a new course focusing on regulatory science to train talented individuals who will be en-

gaged in the development of medical devices and administration of pharmaceutical affairs.

We will promote industry-academia collaborations, exploiting our strengths as Japan's only graduate school of biomedical engineering. Working closely with the invited researcher groups established through an initiative to promote accumulation of researchers in Miyagi Prefecture in order to create knowledge and medical devices, we will encourage research aimed at practical applications to drive innovation in medical science and treatment.

2. Establishing a System for Regulatory Science Education

We will create and implement Japan's first biomedical engineering education programs on regulatory science for graduate students, researchers, medical technologists, and working engineers. The objective of these programs will be to train talented individuals to engage in evaluation of functional effectiveness, safety, quality, and other factors, on a scientific basis. These efforts are indispensable for speedy practical application of various innovative medical devices.

We also aim to promote and propagate education in interdisciplinary areas of medical science and engineering, broaden the basis for research and development, and train the coordinators required by a strategic center for practical applications of biomedical engineering. Thus, we will foster talented individuals who will lead the development of medical devices in the future. In cooperation with researchers inside and outside the university, we will design an educational system for training biomedical engineers.

Graduate School of Educational Informatics Education Division and Research Division

[Faculty's Vision (Basic Philosophy and Mission)]

- OThe Graduate School of Educational Informatics Education Division and Research Division have the following three missions.
- 1) Research and development of a new style of education for the information-era
- 2) Fostering advanced professionals and researchers who engage in information and communications technology (ICT)-based education
- 3) Supporting the utilization of ICT in e-learning and face-to-face lectures

[Organizational Policies for Reinforcing Functions (-2017)]

- OSince our divisions were founded, we have fostered advanced education professionals and researchers who are engaged in education utilizing ICT, including computers and the Internet. Meanwhile, IT technologies have developed remarkably, and Japanese society has been transformed as well. The utilization of ICT for education has become common, even as its momentary surge in popularity has been moderated. The e-learning boom that began in 2001 has settled down as well, as have the system development and practical research projects that it requires. On the other hand, society now demands a higher level of excellence in education in this unpredictable era, allowing students to take control of their own learning, capacity-building leading to the best solutions for problems that do not have obvious solutions, and the training of versatile and talented individuals who are capable of addressing any situation. Academic societies on education informatics (e.g., The Japan Society for Education Technology) have shifted their research focus from computer science to educational studies. Today, it is common to utilize ICT in the field of education. The Education Informatics Education/Research Divisions understand this shift in societal demands. To address these issues, the Divisions established a mission of pursuing education and research activities that promote "education that enhances the quality of learning by utilizing ICT."
- OWe utilize the latest ICT in more flexible and diverse ways to create a venue where students can systematically learn the foundation of educational studies and grow to eventually assume strong leading roles in the international community.

[Strategic Focus and Major Policies]

1. Rebuilding education and research programs on education informatics based on educational studies

We have shifted from conventional education, which places equal emphasis on educational studies and computer science, to an education curriculum that aims to foster talented individuals who are capable of utilizing cutting-edge ICT flexibly in different circumstances, based on their systematic knowledge of basic education studies. 2. Rebuilding education and research programs on ICT-based education for the purpose of higher-quality learning

In this unpredictable era, society has placed greater demands on education. Members of society want students to take control of their learning, and they also demand capacitybuilding leading to the best solutions to problems with no obvious solutions, as well as the training of versatile and talented individuals who are capable of addressing any situation. In order to respond to the demand for education and "quality of learning," we have also shifted our focus to education and research activities that emphasize educational studies.

3. Reorganizing faculty to meet the demands of the era

Instead of focusing on activities that are specific to our divisions, we have reorganized our faculty according to a new framework. This framework allows education and research activities to emphasize close partnerships with other faculties, including the Graduate School of Education and the Center for Information Technology in Education.

Research Institutes

Institute for Materials Research Institute of Development, Aging and Cancer Institute of Fluid Science Research Institute of Electrical Communication Institute of Multidisciplinary Research for Advanced Materials International Research Institute of Disaster Science Advanced Institute for Materials Research Tohoku Medical Megabank Organization

Institute for Materials Research

[Faculty's Vision (Basic Philosophy and Mission)]

Osince its foundation, the Institute for Materials Research has played a leading role internationally as a center of excellence (COE) in materials research, and our researchers have discovered many new materials that helped build the foundation for advanced industrial society in the 20th century. Likewise, in the 21st century, as an international COE, the Institute seeks to discover and create new materials for the purpose of exploring scientific principles in materials science and the applications of a broad range of materials. The Institute also trains outstanding researchers in the field of materials science, and contributes to the sustainable development of society and the prosperity of all mankind through the promotion of materials science for energy, environment, life, information, and safety engineering.

[Organizational Policies for Reinforcing Functions (-2017)]

- OAccording to our founding principles, we search for scientific principles related to materialbased sciences and their applications. To pursue this goal, we train interdisciplinary researchers through an internationalized educational system. World-class research is conducted in three high-priority research areas: fundamental materials for social infrastructure, energy materials, and electronic materials. To this end, taking advantage of our research centers that involve multiple laboratories, we generate results that individual laboratories cannot produce.
- OBased on our outstanding achievements as a joint usage / research center, we will fulfill our mission as a center for materials science that is open to the entire nation and transcends the boundaries between universities. Through our affiliated research centers, we will promote joint use and collaborative research with other researchers both inside and outside the University.

[Strategic Focus and Major Policies]

1. Further Enhancement of Three High-Priority Research Areas

Based on our focus on problem-solving research and a broad understanding of the importance of diverse materials that are useful in social activities, we plan to strengthen our three high-priority research areas (fundamental materials for social infrastructure, energy materials, and electronic materials), in order to generate research results through collaboration among multiple fields. While effectively taking advantage of small-scale groups, one of our institute's great strengths, we will also maintain low barriers among groups in order to further strengthen the three high-priority research areas. We will enhance collaboration among research groups by utilizing the Integrated Materials Research Center for a Low-Carbon Society, which aims to create innovative materials related to energy efficiency and new forms of energy, and the Center of Neutron Science for Advanced Materials, which strategically utilizes the characteristics of neutrons.

2. Creation of a World-Class Materials Research Center

As importance of materials science achieves greater international recognition, we will serve as a research institute that plays a major role in Japan's national strategy as an international COE. We will conduct a strategic action in order to increase the number of citations of our work in the materials science field. Based on our comprehensive agreement with National Institute for Materials Science, we will establish complementary collaborative relationships between institutes.

3. Enhancement of Industry-Academic Collaboration

In order to strengthen the manufacturing field, a goal that the Japanese government has identified as a strategic milestone, we will enhance collaboration, primarily through the Office for Promotion of Industry–Academia–Government Cooperation. In order to contribute to society, we will also work through our Kansai Center for Industrial Materials Research (technical consultation and guidance for small and middle businesses, training for the manufacturing engineers of the next generation, etc.). We will strengthen the core technologies that are our strengths, and also utilize advanced technologies. We will also construct a long-term road map to support the application of technologies developed at universities.

4. International Recruitment and Activities

We will utilize the fellowship system of the International Collaboration Center to attract outstanding students and researchers from abroad, and enhance the international recognition of the activities of the Institute for Materials Research. Furthermore, we will promote international research activities with foreign institutions involved in the International Academic Exchange Agreements already in effect at Tohoku University (such as joint establishment of collaborative research centers with Dailian University of Technology and Pukyong National University). From the standpoint of internationalized education, we will collaborate with other departments within the University where we have joint laboratories, including the Graduate Schools of Science, Engineering, Environmental Studies, Biomedical Engineering, and Dentistry. We aim to obtain major financial assistance from the Ministry of Education, Culture, Sports, Science and Technology; these grants will contribute greatly to training excellent people and to the development of interdisciplinary educational programs.

5. Contribution as a Joint Usage / Research Center

In order to fulfill our obligation as a joint usage / research center, we will launch initiatives to improve services for collaboration users. These efforts will include some recently launched services, such as the establishment of a dedicated website for joint-use applications and operation of on-campus accommodation, and will also involve improvements in

the contents of these services and provision of additional support. Additional initiatives have also been launched to promote joint use and research by utilizing research centers affiliated with Institute for Materials Research in conjunction with cutting-edge joint-use facilities and systems (e.g., the International Research Center for Nuclear Materials Science [Oarai], the Cooperative Research and Development Center for Advanced Materials, the High-Field Laboratory for Superconducting Materials, the Center for Computational Materials Science, etc.), as well as technical centers that serve as support organizations for specialized technologies.

Institute of Development, Aging and Cancer

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Institute of Development, Aging and Cancer (IDAC) aims to elucidate the basic mechanism of aging, defined as the chronological phenomenon of development from birth to maturation to death, as well as the biological defense mechanism that control aging, in order to establish "medical science of aging" as a new domain. Applying the research results we obtain, we intend to develop cutting-edge diagnosis and treatment methods, as well as innovative medical equipment for diagnosing age-related brain and neurologic diseases such as dementia and intractable cancers, with the ultimate aim of overcoming these diseases. As one of the core research centers for the medical science of aging, we will conduct international joint studies that lead the field and open up new fields in medical science for the super-aging society. These efforts will help us to become a world-leading research center in this field.

[Organizational Policies for Reinforcing Functions (-2017)]

OJapan is the first country in the world experiencing a super-aging society. Many developing and developed countries with aging demographics are watching how Japan addresses this issue. Tohoku University, which holds an important position among academic research universities, must promote research to address the aging society, which is important in order to establish this field as a global standard. For many years, we have explored the rules and principles by which individuals and society should respond to aging. We have also tried to reap the benefits obtained from such studies by developing practical applications and sharing them with society. In order to continuously contribute to achieving "Smart Aging" and a "Smart Aging Society," we will work as broadly as possible to promote research, advanced and sophisticated medical treatment, industry–academia collaboration, and industry–community cooperation.

[Strategic Focus and Major Policies]

1. Global research in medical science of aging

Under the philosophy of contributing to the achievement of "smart aging," we will promote and pursue advanced cutting-edge studies in aging control, tumor control, and brain science, which constitute the three pillars of medical science of aging. For the specific purpose of encouraging globalization, we will present role models for globalization by enhancing international joint research and increasing the number of opportunities for young researchers to engage in international exchanges.

2. High research standards

We will continue to publish many articles in internationally renowned journals with high

impact factors and maintain high research standards, as reflected by the academic awards we receive and the external research funds we obtain (e.g., Grants-in-aid for Scientific Research).

3. Promoting advanced medical treatment and clinical research at the Graduate School of Medicine and University Hospital, and contributing to training talented individuals with advanced medical knowledge

We will make further contributions in our core areas including intractable cancers, lung transplantation, dementia, and nuclear medicine. More specifically, we will advance clinical research to develop treatment strategies for lung cancer and other intractable cancers. In addition, as a core for multi-institutional joint research, we will perform large-scale clinical studies. IDAC will serve as the core facility for collecting information on lung transplantations nationwide, and also function as a data center to provide relevant information to the world. The PET Clinical Research Unit in the Clinical Research, Innovation, and Education Center aims to develop early-stage imaging-based diagnostic methods for dementia, as well as new medical probes. To train talented medical scientists, the Office of Comprehensive Cancer Treatment Promotion and the Tohoku Community Cancer Services Program will play a major role in educating young cancer researchers and improving regional cancer-treatment standards. Cooperating with the Graduate Medical Education Center and the Advanced Medical Training Center of Tohoku University Hospital, we will implement training programs for young residents to acquire basic medical skills, as well as programs for medical specialists to master advanced medical skills.

4. Functional enhancement of interdisciplinary research, including cooperation between medical science and engineering

In order to enhance contribution to the realization of a healthy and long-lived society by creating medical innovations, IDAC will further intensify development of innovative medical devices via cooperation between medical science and engineering, which represents one of our greatest strengths. To achieve this goal, we will improve the environment for experimental work and implement organizational reforms.

5. Promoting Industry-Academia Cooperation

On the basis of the medical and technological seeds obtained from research, and by exploiting the Tohoku University Business Incubation Program, we will help to create and develop new business ventures. At the same time, we will be actively involved in technology transfer of individual seeds.

6. Creating and expanding the knowledge-based community and contributing to reconstruction following disasters

We will make our best effort to create a knowledge-based community, or what is called a "Smart Aging Society," in which everyone is connected by intellectual curiosity in a way that transcends age and gender. For this purpose, we will enhance the Smart Aging College programs and also provide similar programs in the Tokyo area. More specifically, we

aim to establish a "Citizen's College" on a university-wide basis, where credits will be granted for any person who has learned successfully. In addition, we will offer delivery services for the Smart Aging College curricula, and we will also plan and study successor programs to deliver regular lectures to disaster-affected regions according to their specific needs.

7. Facility improvements

We will establish an environment for non-clinical laboratory studies to comply with Good Laboratory Practice (GLP) standards and the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) certificate, in order to further enhance the level of our research on the medical science of aging.

Institute of Fluid Science

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Institute of Fluid Science aims to promote world-class research, as well as contribute to the resolution of various challenges that our society faces, through 1) basic research of fluid science; 2) integration of fluid science with other cutting-edge disciplines, based on fundamental research; and 3) the application of research results to prioritized fields of science. We also foster the young researchers and engineers of the next generation, and encourage them to achieve global competitiveness through their research activities.

[Organizational Policies for Reinforcing Functions (-2017)]

- Our institute is founded on the principle that we will solve various problems that our society faces by promoting world-class research in fluid science and fostering personnel through research activities. To develop this principle and pass it down to future generations, we will further develop globalized education and promote advanced and interdisciplinary fluid-science research in various fields including energy, life science, aerospace, and nano- and micro-technology.
- OWe will improve the research environment in the Multi-Stage International Collaborative Research Network and further enhance the support system for international collaborative research, which is critical for realizing our vision of "Achieving World-Class Status and Leaping Ahead." We will provide strong support for advanced domestic and international collaborative research through the Fluid Science Research Center, a global hub in the field of fluid science.

[Strategic Focus and Major Policies]

1. Fostering young personnel who can play leading roles in the world (Education) To foster young personnel who will play leading roles in the world, we will continue to provide Doctoral Course students with educational programs based on cutting-edge research, which have generated significant outcomes in the 21st Century Center of Excellence (COE) Program as well as the Global COE Program. Because we believe that researchers should have experiences abroad as early as possible, we will proactively provide our Master's Course students with opportunities to give international presentations through the IFS Graduate Student Overseas Presentation Award. Our main mission is fostering young researchers who will constitute the next generation of research and education, including assistant professors and associate professors. To this end, we will send young researchers overseas for about 1 year to provide them with opportunities to experience the international research environment. The aim of this program is to foster researchers who will be able to play leading roles in the world. 2. Research on the advanced integrated field of fluid science (Research)

The Institute for Fluid Science is the only research institute in Japan specialized in fluid science; indeed, it is one of the few such institutes in the world. As an institute acknowledged as a Joint Usage / Research Center in the field of fluid science, we will promote multidisciplinary research on fluid science related to various important fields, such as energy, life science, aerospace, and nano- and micro-technology. Especially in the field of energy, we will promote research based on fluid science. To this end, we have established the Innovative Energy Research Center and launched the Core Technology Consortium for Advanced Energy Devices.

3. Contribution to post-earthquake restoration through cutting-edge research outcome on fluid science (Post-earthquake restoration)

Through our cutting-edge research outcome on fluid science, we aim to solve various challenges related to the reconstruction after the 2011 Great East Japan Earthquake by promoting an organized initiative on post-earthquake restoration led by the Core Technology Consortium for Advanced Energy Devices. Furthermore, we will promote research and development on tasks related to post-earthquake restoration, including simulation of tsunami damage, control of the nuclear power plant and securing its future safety, development of alternative energy resources, medical technologies for emergency response, elucidation of the mechanisms underlying the occurrence of earthquakes, and development of disaster reduction technology.

 Industry–University Cooperation through cutting-edge research on fluid science (Coordination with industry)

With the Industry–University Liaison Office as the central axis, we will promote industrial– university cooperation while addressing in our research the challenges faced by society. Subsequently, we will rapidly share the research results with society at large. In addition, we will promote industry–university cooperation through consortia. We will also reinforce collaboration with regional enterprises while encouraging industries to utilize our advanced equipment intended for joint use.

5. International cooperation through the Multi-Stage International Collaborative Research Network (cooperation with the international community) We will promote international collaborative research and training of professionals by leveraging the Multi-Stage International Network, which consists of six Core Organizations that have established their own Liaison Offices, and 46 agencies that have signed a treaty. As an international core center in the field of fluid science, we will promote exchange between international researchers and the dissemination of information throughout the world by organizing an annual international symposium featuring flow dynamics (ICFD: International Conference on Flow Dynamics) in Sendai.

- 6. Bilingual and open environment inside the institute (Campus environment) We will create a bilingual environment (Japanese and English) in our Institute, so that researchers and students from overseas countries, as well as Japanese students and staff members, can enjoy a comfortable environment. We will also promote an environment for exchange among students from abroad, Japanese students, instructors, and staff members, as well as visitors from overseas.
- 7. Optimization of the institute's operational activities (Operations) To promote advanced research and training of professionals on fluid science, we will operate our institute to optimize our activities. In addition, we will improve our research and education environment, as well as enhance support systems for research and educational activities, in coordination with the Office of Administration, Technical Services Division, Research Support Office, and International Exchange Promotion Office. These efforts will focus on securing instructors' time for research activities. We also promote acquisition of external funds via the Industrial–Academic Cooperation Office.

Research Institute of Electrical Communication

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Research Institute of Electrical Communication (RIEC) has a long tradition of original research and achievements in the fields of high-density and high-level information and communications. With this in mind, and taking advantage of the mobility enjoyed by a university-affiliated institute, we continually investigate and research scientific principles and applied technologies aimed at creating communication technologies that enrich humanity, including harmonious man-machine interfaces, and continue to serve as the center of information and communication research in Japan.

[Organizational Policies for Reinforcing Functions (-2017)]

We are pursuing the following goals, with the aim of resolving problems associated with information and communication research and contributing to the advancement of human knowledge.

- OWe continue to pursue diverse and multifaceted research projects in order to accomplish our mission of creating communications technologies that enrich people's lives.
- OWe promote research and development on energy-efficient, high-speed, and high-capacity information and communication technologies to produce highly applicable and disaster-tolerant systems.
- OWe promote research and development on novel and advanced information processing and communications by exploiting state-of-the-art information and communication technologies.

[Strategic Focus and Major Policies]

1. Promotion of research on information and communication technologies for the betterment of human knowledge

We promote multifaceted cutting-edge research in the fields of information and communication, in line with the university objectives of "Achieving World-Class Status and Leaping Ahead" and "Leading the Post-earthquake Restoration and Regeneration." For this purpose, we focus on promoting diverse state-of-the-art research, student and recurrent education through research, our own activities as a joint usage/research center, international partnerships, disaster-resistant ICT(Information and Communications Technology) research for earthquake disaster reconstruction, and partnerships with private industry.

2. Capacity-building for diverse research activities

In order to promote diverse research activities, we exercise flexible institute management that allows for dynamically formed research groups to meet the needs of various research projects. Under our new flexible management system, researchers belong to basic re-

search divisions according to their research areas, and they can also participate in research groups formed by the institute. In order to recruit more diverse research staff members, including female and foreign researchers, we have allocated our own funding for new research positions.

- 3. Training researchers and engineers through state-of-the-art research We promote educational and professional development as an integrated part of our stateof-the-art research activities, and we train top-level researchers and engineers in collaboration with related graduate schools. Through our international partnership programs, we introduced a support program for study and research abroad. We also provide open lectures for recurrent education.
- 4. Promotion of activities as a joint usage/research center

As a joint usage/research center, we promote nationwide cooperative research projects, which are activities central to the institute. In order to encourage diverse research projects, we reformed our joint project research systems and classified our projects into five categories, according to their main objectives: large-scale project proposals, fostering young researchers, providing support for novel and preliminary research, international joint research, and inter-organizational research.

5. Internationalization and promotion of international joint research

We introduced a new program that sends a young researcher abroad each year. We promote international research by strengthening our system for visiting foreign scholars, as well as through the RIEC international symposium. Based on the goal of promoting worldclass international joint research, we introduced "international collaboration" as one of the five classifications of our cooperative research projects.

6. Promoting research activities related to Leading the Post-earthquake Restoration and Regeneration

We are contributing to creating new industries and promoting the regeneration of Japan through partnerships with private industry. As distinguished citizens with expert knowledge, we actively participate in governmental and industry actions related to future planning, and we also contribute to the creative reconstruction of local communities. As a primary contributing organization, we support the Research Organization of Electrical Communications, which aims at establishing disaster-tolerant ICT.

7. Promoting academia-industry collaboration

We propose goal-oriented academia-industry collaboration, based on our research results, and promote the establishment of joint-research programs.

Institute of Multidisciplinary Research for Advanced Materials

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Institute of Multidisciplinary Research for Advanced Materials aims to conduct multidisciplinary research on scientific principles related to various kinds of materials and their applications.

We aim to establish a novel scientific field by actively pursuing challenges in "multidisciplinary materials science," as both a domestic and international core research center. To do so, we will strive to create new knowledge, technology, and values. We will also aim to satisfy the requirements of a global society, as well as train young researchers and engineers of next generation through our research activities, including collaborations with domestic and international scientists.

[Organizational Policies for Reinforcing Functions (-2017)]

OWe will develop the mission of our Institute and pass it down to future generations. Multidisciplinary materials science has two different aspects: (1) creation of interdisciplinary materials in which inorganic, organic, and biological substances are integrated from the nano- to the macro-scale level, and (2) creation of new academic fields that integrate disciplines such as physics, chemistry, life science, engineering, and environmental science. We aim to take the lead in contributing to the realization of a sustainable multicultural society by pursuing advanced and multidisciplinary research fields concerning hybrid nanomaterials, next-generation inorganic materials, cutting-edge measurement methods, and the life sciences.

○Toward our University's vision of "Achieving World-Class Status and Leaping Ahead," we will take various measures to raise the profile of the Institute of Multidisciplinary Research for Advanced Materials. In addition, in order to promote these measures, we will improve the environment for education and research activities. As a core research center for multidisciplinary materials science, we will also promote collaborative research with partners inside and outside our university as well as industry.

[Strategic Focus and Major Policies]

1. Deepening multidisciplinary materials science by conducting advanced fundamental research, and establishing a core center for domestic and international collaborative research

We aim to become a global hub for multidisciplinary materials science, which integrates various types of materials and multiple academic fields. In particular, we will focus on the following subjects: (1) creation and evaluation of hard and soft materials, including composite materials; (2) resolution of problems related to resources, energy, and the environment; (3) development of materials and devices for electronics and photonics; (4) mate-

rial science that provides a foundation for life science and medical technology; and (5) development and application of advanced measurement technologies. In addition, we will advance the following initiatives: creation and application of hybrid nanomaterials, research and production of novel inorganic materials, integration of life science with materials science, incorporation of computational and mathematical sciences, and so on. Through the activities of the Network-Type National Joint Usage / Research Center "Network Joint Research Center for Materials and Devices" and other institutions, we will cooperate with domestic and international research institutes and researchers to establish a world-class core research center as a fellowship of knowledge, open to the world, where scientists gather to learn, and create.

- 2. Conducting industry–university joint research and creating innovations to facilitate the Tohoku reconstruction and the revitalization of Japan We will participate in the "Tohoku University Reconstruction Action," and continuously conduct our own support activities to aid in reconstruction. To contribute to the reconstruction in Tohoku region and the revitalization of Japan, as well create innovation, we will proactively promote the "Industry-University Collaboration Development project for Reconstruction." We will promote industry–academic cooperation to revitalize local industries by utilizing the Material Solutions Center, the "Joint Research" framework (collaborative research and joint R&D by companies and Tohoku University), and other systems.
- 3. Training talented researchers who are well grounded in multidisciplinary materials science

In cooperation with the four graduate schools (Science, Engineering, Life Science, and Environmental Science), we will foster globally minded professionals with diverse values and capabilities by organizing various seminars in multidisciplinary materials science, technical training, and language training. We will encourage students and young researchers to take advantage of opportunities to give presentations at international conferences and receive education and training abroad, while leveraging our own support system. Also, we will promote joint research and personnel exchanges with overseas organizations, and provide opportunities for international activities to our students and young researchers by proactively accepting visiting professors and researchers from abroad via international al-exchange agreements and international cooperative projects. We will also prepare various types of manuals for foreign students and researchers, as well as some materials written in English, regarding safety management, public relations activities, and administrative procedures in our Institute, in order to establish a bilingual environment that enables researchers and students from abroad to fully and comfortably perform their activities.

4. Boosting the presence of our Institute to pursue the vision of "Achieving World-Class Status and Leaping Ahead"

Based on the establishment of a world-class core research center and cultivation of globally minded professionals, we will promote publications about our database, software, and research topics, and then enrich the content of our English-language web site and newsletters in order to further improve our ability to disseminate information to the worldwide research community. We will also proactively organize and co-organize international conferences and seminars. In addition, we will prepare an organizational framework to implement effective public relations and information-related activities.

5. Reinforcing the organizational operation ability

We will maintain and enhance the four fundamental Research Divisions (Organic- and Biomaterials, Inorganic Materials, Process and System Engineering, and Measurements). In addition, we will operate our Research Centers from a focused and flexible standpoint, according to the needs of the society and the degree of scientific development, as well as promote robust and flexible operation of our organizations in cooperation with the Research Support Section, Technical Service Section (which is attached to the machine shop and glass-blowing workshop), and the Administrative Office. We will also establish a comfortable and harassment-free workplace and environment for education and research, where all researchers, staff members, and students can perform at their maximum capacities. Furthermore, we will conduct operations related to personnel and administrative management in a manner that appropriately copes with gender equality and internationalization. To do this, we will manage our Institute efficiently by reviewing its work control and organizations, as well as promoting external outsourcing. We will also continuously strive to enhance industrial-academic cooperation and acquire competitive budgets from external funding organizations, with the goal of reinforcing our financial base. We will disclose our outcomes, performance, and management status, as well as accept appropriate evaluations and recommendations from external organizations and sincerely strive to incorporate the resultant advice and suggestions into our management systems.

International Research Institute of Disaster Science

[Faculty's Vision (Basic Philosophy and Mission)]

OThe basic mission of the International Research Institute of Disaster Science is to update this country's countermeasures and responses to natural disasters, as well as measures for disaster preparedness in civil society, and then create a new paradigm for a society that is well prepared for large-scale disasters. We also seek to establish a foundation for Actionbased Disaster Mitigation, which aims to specifically resolve the challenges that our society faces in reducing damage from huge disasters that occur in Japan and other countries.

[Organizational Policies for Reinforcing Functions (-2017)]

Oln our research, we will gather all relevant knowledge on action-based disaster mitigation, so that we will be able to contribute to rapid and creative reconstruction efforts following the 2011 Great East Japan Earthquake. We will promote cutting-edge disaster research based on physics, engineering, and medicine. As the unique institute in Japan where humanities and sciences are studied collaboratively, we will lead interdisciplinary research in the social sciences and humanities, with a focus on human beings and society. We aim to become a core research center for disasters occurring inside and outside of Japan.

[Strategic Focus and Major Policies]

- 1. Becoming a global hub for research on disaster science
- We aim to become a global hub for research on disaster science by performing advanced research in all relevant fields. Specifically, we will elucidate the mechanisms of earthquakes and tsunamis, collect information on the current situation in areas affected by the 2011 Great East Japan Earthquake, improve the earthquake resistance of civil-engineering constructions and structures, study the impact of disasters on human communities, aid in post-disaster recovery of society, research disaster-related medicine, and establish an archive of the Great East Japan Earthquake.
- 2. Promotion of science-humanities research and various other interdisciplinary collaborations

Society's requirements for research on disasters, as well as the results of such studies, are broad-ranging and diverse, and thus extend far beyond the traditional boundaries of academic fields. To address this situation, we will enhance the scope of our research by conducting interdisciplinary and integrated research.

3. Establishing action-based disaster mitigation

We will promote research on action-based disaster mitigation corresponding to each phase of a disaster: preliminary disaster-control measures prior to occurrence, responses in the event of disaster, and various measures for community reconstruction. In addition, we will contribute to the enhancement of disaster-prevention measures in Japan and the world, while facilitating the restoration of areas affected by the Great East Japan Earthquake and developing disaster-control measures.

4. Training individuals with knowledge of disaster risk reduction

In our liberal arts courses, we actively utilize the outcomes of our disaster-prevention research. In the Undergraduate Course, students are provided with systematic education on disaster preparedness so that they can acquire basic knowledge about the mechanisms of natural disasters and the ideal responses to disasters that occur. On the other hand, specialized education in the graduate school and the Program for Leading Graduate Schools is aimed at training professionals who can work as leaders in regional disaster prevention, develop and promote adoption of disaster-reduction technology, and make discoveries that form the foundations of future technologies.

5. Expanding education on disaster preparedness into society at large

To increase disaster preparedness, it is critical that knowledge regarding disaster risk reduction be widespread in society. We will deliver lectures about this topic to elementary schools, junior high schools, and high schools, so that households and communities can increase their preparedness for disasters. Such opportunities for learning at school will serve as the starting point for the dissemination of relevant knowledge. We will also develop materials for education on disaster preparedness, as well as organize seminars and symposiums to share knowledge about disaster risk reduction.

6. Enhancing cooperative disaster prevention in cooperation with industry, government, academia, and local communities

To deploy and disseminate the action-based disaster mitigation measures to society, public relations activity and cooperative research with industry, government, and academia are indispensable. Therefore, we will conclude comprehensive cooperation treaties regarding disasters and share our research outcomes that meet the needs of local governments. In addition, we will conduct cooperative research with industry on disaster prevention technologies, as well as develop a new archiving system regarding the Great East Japan Earthquake. In collaboration with various organizations, we will promote multiphase activity to reduce disaster risks.

7. Enhancing cooperation with the international community

At the UN World Conference on Disaster Risk Reduction, which will be held in Sendai City in 2015, we will share our research outcome with the world. Starting at the planning stage, we will cooperate with the Ministry of Foreign Affairs, Sendai City, and other entities. In conjunction with the Association of Pacific Rim Universities (APRU), we will also co-organize the "APRU-IRIDeS Multi-Hazard Program" to promote research exchanges. In addition, in collaboration with international agencies (e.g., the United Nations) and overseas research institutes that address the standardization of disaster-control technology, we will also aim to standardize disaster-prevention measures internationally. Thus, our Institute will play a leading role in improving countermeasures against disasters that occur around the world.

8. Acknowledgement of National Joint Usage / Research Center

We seek to be acknowledged as an inter-university research institute by the Minister of Education, Culture, Sports, Science and Technology, and thereby become one of the National Joint Usage / Research Centers. In order to be acknowledged as a Center, we will continue to strive for outstanding performance and establishment of a research network.

Advanced Institute for Materials Research

[Faculty's Vision (Basic Philosophy and Mission)]

OAdvanced Institute for Materials Research (AIMR) maintains focus on its mission to seek new values by practicing high-quality science, leading system reforms and internationalization, and pioneering new interdisciplinary research fields with the ultimate goal of contributing to humanity as a top-tier research institution that continues to lead the world.

[Organizational Policies for Reinforcing Functions (-2017)]

- OWe continue to play a role in ushering in a new era and further developing environments and systems that allow our ambitious researchers to pursue new values. Establishing an independent research environment for young researchers, as well as the systems for their promotion and tenure, is essential to attaining this goal. As a research institute that is open to the global community, we are accelerating our efforts to organize joint research projects with international entities and attract visiting researchers, in order to create an international community of knowledge with us at its core.
- Our role is to become a driving force for the globalization of the university and its systematic reform by expanding our administration, with the ambition of reforming the organization as a world-class research institution. We will secure a diverse funding base that gives us the freedom to pursue these goals.

[Strategic Focus and Major Policies]

1. Establishing a basis as a permanent department

We continue to develop AIMR so that it internationalizes and guides the university to become the world's highest-level research institution. We also promote interdisciplinary research programs based on collaboration between mathematics and materials science collaboration, which is the first such collaboration at the institution level. In doing so, we hope to lead in the establishment of a new scientific principle that allows prediction-based development of new materials. In order to function as an international research hub for a global intellectual network, we will establish a world-class organization and management system (e.g., a personnel system that is appealing for foreign professionals, and assignment of English-speaking staff throughout the institute). We will further improve our research support center, including support for common equipment and mentorship systems, and establish a foundation for becoming a permanent department for both research and systems.

2. Establishing a tenure system

Trend-sensitive human-resource systems and job security are essential in order to attract researchers from abroad. Our highest priority in this regard has been our efforts to es-

tablish a tenure system. AIMR is inviting international peer reviewers to evaluate associate professor-level young researchers to encourage them to engage in pioneering research activities. Through cooperation with related faculty and our own financial base, we will develop this spirit of cultivating young talent and establish a tenure system.

- 3. Founding overseas research stations and reinforcing the global network We will expand the joint laboratories at our overseas satellites founded to date, and reinforce our global network by establishing overseas research stations. Regular AIMR researchers will be present at the stations to promote joint research work with local researchers, as well as improve AIMR's presence by hosting symposiums and other events. We will expand the global network with AIMR at its core, and establish research hubs including overseas stations, joint centers for small and medium-sized research exchanges, and joint laboratories.
- 4. Expanding the International Administrative Office and launching a research reception center

AIMR will develop our already internationalized offices into the international administration office of our newly established Organization for Advanced Studies. The Research Reception Center will be launched to provide a venue for researchers from abroad to stay over the short- to medium-term to engage in academic exchanges with researchers at Tohoku University. These efforts will build on the know-how obtained from international symposiums led by the AIMR administrative office, and reinforce the function of the existing office.

5. Designing a system for a multilateral financial capacity

Sustainable development of AIMR requires a diverse funding base in addition to resources available from the university. AIMR will further reinforce our strength in research activities in order to enhance the AIMR Fund, which has already been established to attract corporate sponsorship.

Tohoku Medical Megabank Organization

[Faculty's Vision (Basic Philosophy and Mission)]

OTohoku Medical Megabank Organization (ToMMo), which combines Japan's first large scale composite biobank and a center for genome analysis, will implement the world's highest level cohort studies, while developing talents who will lead the organization's projects.

[Organizational Policies for Reinforcing Functions (-2017)]

OWe will contribute to rebuilding the community medical system and at the same time aim to establish the next generation medical system including drug discovery research and personalized health and medical services, through large-scale genome cohort studies particularly in the disaster affected areas.

[Strategic Focus and Major Policies]

- 1. Community medical support and cohort studies
 - We support dispatch of physicians to regions lacking proper medical care through the "System for dispatching physicians on a rotating basis." To create cohorts, we are conducting long-term health studies (community resident cohort study and three-generation cohort study).
- 2. Creating a biobank

We will create a biobank utilizing biospecimens, health information, diagnosis and other medical information collected through health studies. We will divide and transfer the above biospecimens and information to researchers and other specialists aiming to realize the next generation medical care, only after proper examinations.

3. Genome information analyses

We completed whole-genome analyses of 1,000 people to identify the standard genome sets of Japanese. We will analyze predisposing factors and prevention methods of such diseases as cardiovascular disorders and mental/nerve disorders, of which future increase is particularly concerned in the disaster affected regions.

4. Developing talents

In advancing the main projects of cohort studies, creation of biobank, and large-scale analysis of genome and other information, we will develop and secure diverse talents including genome medical research coordinators (GMRCs), bioinformaticians and genetic counselors, in cooperation with the Graduate School of Medicine and the Graduate School of Information Sciences.

5. Industry-academia cooperation

To realize futuristic medical care we aim at, we will cooperate with research institutions such as universities and business enterprises. We will utilize Tohoku University Kenko Plaza (health plaza), transferred from Japan Science and Technology Agency (an independent administrative corporation), as a vehicle with an incubation function where pharmaceutical companies and IT companies can jointly work for drug discovery and other projects.

Inter-Department Institutes for Education and Research

Center for Northeast Asian Studies Research Center for Electron Photon Science Research Center for Neutrino Science Institute for Excellence in Higher Education Institute for International Advanced Research and Education Frontier Research Institute for Interdisciplinary Sciences The Center for Academic Resources and Archives Center for Information Technology in Education Cyclotron and Radioisotope Center New Industry Creation Hatchery Center Technology Center for Research and Education Activities Cyberscience Center

Center for Northeast Asian Studies

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Center for Northeast Asian Studies (CNEAS) promotes world-class research on Northeast Asia, ranging from Siberia and the Far East in Russia to Mongolia, China, the Korean Peninsula, and Japan. CNEAS serves as a hub for Northeast Asia–focused interdisciplinary research by hosting liberal arts and science researchers in multinational partnership with other Northeast Asian countries, with the ultimate goal of promoting greater understanding of this region and addressing regional issues.

[Organizational Policies for Reinforcing Functions (-2017)]

- OWe pursue activities that promote understanding of this region based on our interdisciplinary research, which includes fields in both the liberal arts and the sciences, in partnership with research institutions and researchers in Japan and Northeast Asian countries. Our goal is to further develop and spread the faculty's comprehensive interdisciplinary understanding of the region.
- OWe are working to establish a support system that allows for the development of an environment for international research collaboration and the sharing of our research results in multiple languages. These are both essential elements for us to "Achieve World-Class Status and Leaping Ahead." We also actively promote internationalized studies in the unique field of Northeast Asian Studies.

[Strategic Focus and Major Policies]

1. Promoting Northeast Asian Studies through foundational and interdisciplinary studies and by pioneering a new research frontier

We are pioneering a new research frontier, originating from Northeast Asian Studies, by promoting social contribution through global expansion of interdisciplinary studies and academic research in this field. This work builds on the foundational research projects that each field has established so far.

2. International hub for an intellectual network in the field of Northeast Asian Studies

We promote open international joint research activities and exchange programs through academic partnerships and the sharing of results within expanded networks of academic institutions and research projects in the field of Northeast Asian Studies.

3. Promoting socially engaged research activities in partnership with national and local governments

The conservation of historical documents, radar-based exploration of ruins, disaster prevention research, and the investigation of intangible cultural assets after the Great East Japan Earthquake in 2011 are all part of what we call "Heritage Studies." We will continue to promote these socially engaged research activities.

4. Forming and developing intellectual communities through Northeast Asian Studies

We will create a unique, socially engaged field by forming and developing intellectual communities around Northeast Asian Studies through open lectures, liberal arts salons, and the collaborative activities of the Association for Northeast Asian Studies.

5. Being a source of information to the rest of the world

We will reinforce our capacity to become a source of information to the rest of the world through the multilingual publication of our peer-reviewed academic journal, Northeast Asian Studies, and other academic literature (e.g. peer-reviewed books, research reports, and a monograph series that includes the diverse work of the Center's faculty, researchers, and fellows). CNEAS actively seeks to disseminate its leading-edge research information on its website.

Research Center for Electron Photon Science

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Research Center for Electron Photon Science primarily utilizes electron and photon beams of various energies, generated by electron accelerators, to study fundamental theories and applications of different levels of materials including nuclear physics, accelerator science, and materials science. The Center also develops new electron-photon beams to pioneer new research fields and launch new research areas, as well as train researchers and engineers in various areas of electron-photon science.

[Organizational Policies for Reinforcing Functions (-2017)]

- OAs a research center for electron-photon science, we will enhance our research system for nationwide joint use of our accelerator, taking into account the requirements of the research community. In this manner, we will promote collaborative research that takes advantage of the characteristics of the accelerator and its benefits to the University.
- OWe will prepare an environment and support system that are appropriate for an international research center.

[Strategic Focus and Major Policies]

- 1. Quark Nuclear Physics Using Photon Beams (Major Focus Research) By establishing a new research system of inter-center collaboration, we will drive efficient and pioneering collaborative research. BGOegg, which is composed of 1,320 BGO single crystals, is a 4 π electromagnetic calorimeter of the world's best energy resolution in the 1 GeV region. This instrument is the key detector of the electron-photon science research center. The Sub-atomic Science Research Center (Research Center for Nuclear Physics, Osaka University) operates LEPS / LEPS2 under SPring-8, which is the only instrument in the world capable of emitting a 100% polarized GeV-region photon beam. By connecting these two instruments to drive research in this field, we will be constructing facilities at SPring-8 that are unlike any others in the world. We will create a research environment that cannot be attained by a single research center in terms of large-scale technological development; efficient use of staff members; international cooperation; the sharing, accumulation, and extension of technologies; and continuous training of staff members.
- 2. Nuclear Structure Study of Short-Lived Unstable Nuclei Using Electron Scattering (Major Focus Research)

In conjunction with RIKEN, we have invented an innovative experimental technology that enables the study of unstable nuclei using accumulated electron beams. This has made it possible to study the internal structure of unstable nuclei using electron scattering, which was considered to be impossible in the past; consequently, this work has attracted international attention. Although electron scattering is the most powerful experimental method for studying nuclear structure, this method had not been applied previously to unstable nuclei, because their short lifetimes created major technical challenges. We aim to achieve the world's first unstable nuclear electron scattering.

3. Development of the High-Intensity Light Source (Major Focus Research) Our small linear accelerator uses a unique, unconventional electron-beam pulse-compression method to generate ultra-short pulses of approximately 50 femtoseconds. The coherent light is emitted from an isochronous ring of special beam optics, which rotates as it retains the shape factor of the electron pulse, thereby yielding a very high average power. The emitted coherent light is confined in an optical resonator using an undulator that resonates in the terahertz region, enabling development of a novel free-electron laser in which the optical cycles can be intentionally altered. This high-intensity coherent light can make a significant contribution to the polymer spectroscopy, which is important in life science, and photoreactive isotope analysis, which is essential in studies of decay and extinction of radioactive materials.

4. Joint Use of the Accelerator

The positron beam that is obtained from the GeV electron-photon beam has an excellent energy resolution, and the beam energy range and intensity are suitable for testing detectors. For these reasons, this beam is widely used by researchers conducting experiments on nuclear and elementary particles, as well as cosmic rays and solid-state physics. Moreover, the large-current MeV electron beam that is generated by a high-current lowenergy electron beam is used in radiation chemistry and biological research. We will be promoting collaborative research at the accelerator that uses these electron beams, and provide venues for training graduate students on the accelerator.

5. Creating an Environment Suitable for a Research Center

We will be securing research space for collaborative researchers, visiting scholars, and international visitors. In addition, we will create a new 100-seat conference room that can be used for small international workshops.

Research Center for Neutrino Science

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Research Center for Neutrino Science conducts research in neutrino science in a broad sense, aimed at contributing to the progress of science. In addition, the Center makes use of its research environment to train researchers with world-class specialized knowledge.

[Organizational Policies for Reinforcing Functions (-2017)]

- OIn line with the departmental mission of contributing to the development of neutrino science in a broad sense, and in order to further advance the Center's mission, we will maintain the advanced capabilities of our measuring instruments and further increase our competitive edge. As a global center, we will also conduct research that attracts outstanding researchers for the purpose of developing neutrino science in a broad sense.
- OWe will establish a unique, cutting-edge research environment that supports our role as a worldclass research and education center. We will provide an excellent educational environment and support collaborative research with researchers in Japan and abroad, in order to train researchers who can assume leadership roles based on their experiences at our Research Center.

[Strategic Focus and Major Policies]

- 1. Improvement of the Ultra-Low-Radiation Environment
- We will maintain KamLAND, which uses the largest liquid scintillators in the world, in order to achieve ultra-low-radiation environment and increase its versatility. To further improve our world-class ultra-low radiation environment, we will provide a screening environment and increase the cleanliness of the underground facilities. Furthermore, with the goal of improving ultra-low-radiation science, we will expand facilities such as the cranes and replace faulty optical sensors and electronic circuits.

2. Double Beta-Decay Research

We will continue to lead the world in the search for double beta-decay not accompanied by neutrinos, taking advantage of the ultra-low-radiation environment. In order to study the universe and elementary particles, we will also aim to obtain large grants to improve the capability of KamLAND. Moreover, we will deepen our collaboration with Super-Kamiokande and the other underground experiments operated by The University of Tokyo, Osaka University, Kobe University, and other participating universities and research centers in Japan and around the world. Through increased sharing of ultra-low-radiation technologies, facilities, and exchanges of personnel, we will create research community of scientists participating in elementary-particle experiments conducted underground. Our long-term strategic research will drive the efficient and effective study of the universe and elementary particles.

3. Neutrino Geophysics

We will set goals in fundamental and novel research areas including interdisciplinary areas, and provide a research environment in which unique and competitive projects can be conducted. Under an agreement with the Earthquake Research Institute of the University of Tokyo, we will continue a wide-ranging collaboration in fields including elementary particle physics and geophysics, pioneered by the Research Center for Neutrino Science, and advance elementary particle geophysics in order to expand our network around the world.

4. Ultra-Low-Radiation Science

Leveraging the versatility of our equipment, we will conduct innovative ultra-low-radiation science, including the search for dark matter and the fourth-generation neutrino. Facilities will be built to install heavy equipment, and the environment will be prepared for installation of neutrino sources and neutrino generators for wide-ranging international collaborations.

5. Innovative Technologies

We will contribute to innovation in industry by developing cutting-edge measuring equipment, high-speed signal-processing circuits, an ultra-low-radiation environment, and large-scale data-processing technologies. We will dramatically improve the performance of our experimental facilities to boost ultra-low-radiation science. We will also support the development of innovative technologies, including high-quantum efficiency optical sensors, high-sensitivity imaging systems, high-speed dead time-free electronic circuits, and photoluminescent films.

6. International Education and Research Environment

We will accept researchers and students from abroad on a long-term basis under the auspices of cutting-edge international research projects that attract excellent researchers. Consequently, our graduate students will be able to conduct their research in an international environment. Administrative staff members who are fluent in English will be hired so that researchers from abroad can comfortably concentrate on their research. In particular, we aim to make research activities and life comfortable in the Mozumi Lab and the Underground Lab. As a foundation of our research, we will construct advanced broadband, highly parallel computational systems for neutrino measurement data processing, and make use of these systems in our educational programs.

Institution for Excellence in Higher Education

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Institution for Excellence in Higher Education is engaged in integrated efforts including research projects aimed at advancing liberal arts education and student support, making proposals and recommendations, and developing and implementing methodologies in partnership with related Departments. In doing so, we are able to enhance the educational capability of Tohoku University and pursue our mission of training future world-class leaders who can succeed in the era of globalization.

[Organizational Policies for Reinforcing Functions (-2017)]

- OWe promote R&D and its implementation according to the principle of reinforcing cooperation and partnership between faculty members. In addition, we provide comprehensive support for student learning, self-development, and career support from the high school to university level.
- Oln response to the needs of our modern knowledge-based society, we have established a vision for world-class liberal arts education. Implementation of this vision requires a commitment to systematic education that advances from foundational liberal arts to specialized education and advanced liberal arts education. We pursue this vision in cooperation with the faculty, graduate schools, research institutions, and academic support organizations.
- Oln order to play an important role in developing and enhancing Tohoku University's global learning environment, we strategically recruit international students and reinforce our overseas training programs.
- OThe concept of university education is shifting from 'teacher-centered' to 'learner-centered'. In response, we are developing various teaching and learning tools, including high-school/ university partnerships, first-year seminars, and a learning support program. In addition, in order to provide comprehensive support, we also promote R&D on teaching and learning management at the individual faculty, subject, and institutional levels. Thus, we contribute to the reinforcement of educational management at Tohoku University by enhancing the capabilities of individual faculty members and functioning as an educational center within Tohoku University, a comprehensive global research institution.

[Strategic Focus and Major Policies]

1. Ideal characteristics for the globalized era and promotion of comprehensive studies on advanced liberal arts education systems

Future leaders face a wide range of challenges, including environmental issues, security issues, energy problems, and ethnic conflicts. Preparing them to address these issues requires a clear definition of the characteristics that they will need, expertise, the ability

to see the big picture, and a life-long willingness to learn. To support these individuals, systemic changes involving reform of educational content and methodology are required. In addition to providing regular instruction, we are developing a campus-wide learning environment with systems for supporting learning and students. We also promote research, development, trials, and implementation of new higher-education approaches and methodologies, such as project-based learning, which are attracting attention from high-er-education institutions from around the world.

2. Developing and promoting a systematic English education program to enhance practical English capabilities

The Institution for Excellence in Higher Education has developed an "extensive reading" English program in conjunction with the library and an e-learning method; both are yield-ing successful results. We will continue to develop these methodologies and curriculum in order to further develop four skills: reading, writing, speaking, and listening.

3. Developing and promoting advanced liberal arts education that incorporates diverse forms of knowledge

In addition to university-wide education as a basis for extensive liberal arts and specialized education, we foster an interdisciplinary mindset and promote science education in order to cultivate multi-dimensional perspectives while reinforcing and developing "integrated natural science experiments for STEM majors" and "integrated natural science experiments for humanities majors." We also introduce interdisciplinary education that tackles issues of human importance that transcend the boundaries of specific subjects or majors. In addition, we have incorporated various forms of practical knowledge from people such as athletes, artists, and artisans who have supported and contributed to the development of our society. By introducing such diverse forms of knowledge into the university education scene, we can further develop and promote a new kind of advanced liberal arts education that will help our students achieve a more profound understanding of the world.

4. Developing and promoting cultural understanding through cultural exchange programs and international joint courses

In the learning environment provided by Tohoku University, students encounter diverse ethnicities, religions, customs and cultures; rethink their own culture; and learn how to coexist in the international community while cultivating the universal values that form the backbone of human societies. In an effort to cultivate cultural understanding and foreign language skills, we will launch liberal arts classes in foreign languages by utilizing the expertise of foreign teachers within the university. These efforts will target subjects and courses that are open to the entire student body. Based on these efforts, we are creating best practices to be shared among universities in Japan.

5. Promoting strategic systems to attract international students, and reinforcing overseas training programs

We are developing diverse and attractive international programs aimed at increasing the

number of international students, as well as reinforcing our support for these students by designing international exchange strategies in the field of education. We are also developing a number of high-quality overseas training programs in coordination with our educational curriculum for the modern globalized era, and dramatically expanding opportunities for students to have international experiences.

6. Promoting comprehensive student support to foster motivation and personal development

The late stage of adolescence is a time when individuals seek their roles in society, form their moral values, prepare for their careers, and establish their identity. To support students at this stage, we have established comprehensive university-wide support systems that address the following areas:

- 1) Mental and physical development and identity (career education, mental health care, lifestyle advice, extracurricular/volunteer activities),
- 2) Basic healthcare (regular checkups, special medical checkups),
- 3) Infection control from a global perspective (tuberculosis, bird flu),
- 4) Crisis intervention and support (counseling),
- 5) Special needs assistance (developmental and physical disorders, assistance for international students), and
- 6) Career assistance (career support).
- 7. Initiative for advancing and expanding Tohoku University's Admission Office entrance exam

In our admission process, we pursue the following goals in order to evaluate prospective students and their capabilities, ensure the equity and equality of the exam systems, and demonstrate effectiveness through a follow-up survey:

- 1) Developing rational selection criteria,
- 2) Reducing the cost of the system,
- Guaranteeing a systematic progression from high school education to university major and career after graduation.

We also grasp the intangible characteristics of the early stage of adolescence, including personality, nature, capacity, and future potential; with these concepts in mind, we pursue research and trials based on theoretical and practical considerations. Studies and reviews of various methodologies from abroad, the application of cutting-edge psychological measurements, longitudinal studies of human integrity (including deeper-level evaluation), joint research with high schools and other universities, and collaboration with the individuals who comprise the core identity of Tohoku University will also be promoted in partnership with other organizations and faculty (e.g., the undergraduate department and graduate school).

8. Professional development of individual faculty members and supporting development of advanced educational institute management

As a center with faculty from diverse disciplines, we have established a range of assistance and support programs for faculty development, aimed at developing the general skills required of university faculty. These skills include research, education, social services, and administration at each career stage: graduate student, new faculty, mid-career and senior faculty.

We are also working to prepare Japanese higher education for globalization by reinforcing teaching and learning management at Tohoku University and other universities in Japan. We are also developing and testing programs that enhance the expertise of academic leaders in order to provide a world-class university education.

Institute for International Advanced Research and Education

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Institute for International Advanced Research and Education integrates education and research activities. In strong partnership with all university faculty and research institutes, as well as the Frontier Research Institute for Interdisciplinary Sciences, we provide practical training to young researchers (PhD students) who will one day lead the world in the field of interdisciplinary studies. In addition, we prepare individuals to "take off" in the national or international scene to play important roles in the academic world of the next generation.

[Organizational Policies for Reinforcing Functions (-2017)]

- Our main focus is to pioneer and promote interdisciplinary studies across different fields. We cultivate researchers who are capable of leading the world in this field by selecting outstanding graduate students. We also support our students in their interdisciplinary studies and challenges in academia in partnership with university faculty and research institutes, as well as the Frontier Research Institute for Interdisciplinary Sciences.
- OWe are developing an environment and establishing financial support systems to allow us to advance onto the international stage, an essential component of "Achieving World-Class Status and Leaping Ahead." We will create an intellectual network and international hub by utilizing the centers for international research and education that the 12 GCOE (Global Center of Excellence) programs built and accumulated over the last ten years. In addition, we will promote academic exchanges among graduate students in Japan and abroad, in partnership with the Frontier Research Institute for Interdisciplinary Sciences as well as our senior mentorship programs.

[Strategic Focus and Major Policies]

- 1. Promoting leading-edge interdisciplinary education and research
 - In order to reinforce and promote leading-edge interdisciplinary science studies, we aim to strengthen the partnerships within and between fields, as well as relationships with the Frontier Research Institute for Interdisciplinary Sciences in six fields (material science and energy, life science and the environment, devices and technology, humanity and social science, and advanced fundamental science) through seminars and study-group activities. We also host seminars to promote education on scientific ethics and social responsibility, and aim to increase our recognition from the Japan Society for the Promotion of Science Ikushi Prize and other awards. Our approach to training world-class researchers in interdisciplinary fields involves all of the above approaches.

2. Supporting a graduate school environment that attracts outstanding international students

In order to create a graduate school environment that embraces international diversity, we identify excellent international students in the doctoral program and reinforce our support for them while working closely with other faculty members. Improving practical English skills and building a network of international researchers are central parts of this effort.

3. Establishing a senior mentorship program

We support researchers in publishing their interdisciplinary research results in top international academic journals. We assign distinguished professors and faculty members who have taken a dean position in the past, as well as senior researchers, to help graduate students with research work and academic career paths and to provide strong support to young researchers who aim to achieve world-class status.

Frontier Research Institute for Interdisciplinary Sciences

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Frontier Research Institute for Interdisciplinary Sciences pioneers and promotes interdisciplinary studies in various academic fields. Under the auspices of a partnership with all university faculty and research institutes, as well as the Institute for International Advanced Research and Education, we are advancing knowledge and creating new values, with the ultimate goal of contributing to the enrichment of human society.

[Organizational Policies for Reinforcing Functions (-2017)]

- Our main focus is to pioneer and promote interdisciplinary studies across different fields. We encourage scholars to achieve world-class research results by engaging full-time faculty members in cutting-edge research activities, and by identifying new interdisciplinary studies within the university, while promoting international partnerships. We also support young researchers in their interdisciplinary studies and challenges in academia, in partnership with university faculty and research institutes, as well as with the Institute for International Advanced Research and Education.
- OWe are developing an environment and establishing financial support systems to allow advancement to the international stage, an essential requirement for "Achieving World-Class Status and Leaping Ahead." We will create an intellectual network and international hub by utilizing the centers for international research and education that the 12 GCOE (Global Center of Excellence) programs built and accumulated over the last 10 years. In addition, we will promote academic exchanges among graduate students and young researchers in Japan and abroad in partnership with the Institute for International Advanced Research and Education, as well as through our senior mentoring programs.

[Strategic Focus and Major Policies]

1. Promoting cutting-edge interdisciplinary research activities and exploring intra-university interdisciplinary research

We will implement the following:

- A program to promote interdisciplinary research activities: Our full-time faculty members will build a team of university researchers and young researchers to promote constructive world-class interdisciplinary research.
- 2) A program to support the establishment of an international research center: Our fulltime members will work in partnership with like-minded overseas research institutions to host joint research programs, personnel exchanges, and joint seminars.
- 3) A program to support interdisciplinary research activities: This program targets individuals outside our faculty and seeks to create new academic fields through interdisciplinary joint research involving members of multiple faculties within the university.

2. Fostering young researchers (Shoushi Program)

Because it is difficult to foresee the outcomes of interdisciplinary research, it is often challenging to obtain competitive funding for such efforts. Therefore, at the international level, it is not easy to foster young researchers in this risky field. To address this issue, we will recruit researchers from all around the world (up to 50 scholars by 2017) who are willing to study in this field while working as staff members at our institute for up to 5 years. We will provide an annual research budget of up to 5 million yen to associate professors, and up to 2.5 million yen for assistant professors. Assistant professors will be hosted by the faculty. We are hoping that solid academic instructions from faculty and mentors will foster the training and professional development of world-class researchers. In order to pursue this goal, we will implement the following:

- An open application for research projects, in order to promote interdisciplinary research among young researchers.
- Seminars led by young researchers and study groups involving doctoral students, in partnership with the Institute for International Advanced Research and Education. (Youken Project)
- 3. Supporting the advancement of young researchers (assistant professors) to the international stage

We will budget for international joint research and international academic symposiums led by young researchers (about five events per year), and also help young scholars publish research results as joint papers written with overseas researchers. To achieve this goal, mentors will provide strong support at each of the international research and educational centers established by the university to date.

4. Creating an international intellectual network and hub for interdisciplinary fields

We will form an international intellectual network by attracting outstanding young researchers from abroad while utilizing the international research and educational centers of the former GCOE, with which our predecessor (Advanced Fusion Synergy Lab) worked.

The Center for Academic Resources and Archives

[Faculty's Vision (Basic Philosophy and Mission)]

- OThe mission of the Center for Academic Resources and Archives is to store and classify records and specimens utilized in research activities or collected for educational activities over the history of Tohoku University. These materials can contribute to the future research and education as academic resources, as well as bring benefits to society. To achieve this mission, our Center will conduct world-class research based on these academic resources, and foster personnel who can play leading roles in the next generation of research in this field.
- OThe Tohoku University Museum will perform world-class research based on these records and specimens, and foster personnel who can play leading roles in the next generation of research.
- OThe Botanical Gardens aim to serve as an international hub for botanical research, while providing sites and materials for international research activities. We also contribute to the education of all University students, as well as continuing education for citizens.
- OThe Tohoku University Archives will contribute to society, and support the fulfillment of the University's mission, through the sharing of the University's historical information. To this end, the Archives will appropriately manage and publicize Tohoku University's historical records as information resources open to civil and international society, as well as develop unique educational and research programs based on these resources. The Archives Serve as one of the National Archives of Japan (defined in the Public Records and Archives Management Act), designated by Japan's Prime Minister, as well as an archiving facility for the entire faculty, graduate schools, and other institutes of Tohoku University. Also, it will provide support for the University's mission of being fully open to society.

[Organizational Policies for Reinforcing Functions (-2017)]

- OWe will establish an environment that leverages advanced technologies, which are essential for the University's vision of "Achieving World-Class Status and Leaping Ahead." We will establish a cooperative structure with various organizations, such as domestic and international museums, botanical gardens, archives facilities, and research institutes. In addition, as a new center for research and education on records and specimens, we will actively support research and educational activities inside and outside the university. In addition, based on our strengths, we will promote projects that support post-disaster reconstruction and thereby to contribute the vision, "Leading the Post-Earthquake Restoration and Regeneration."
- OThe Tohoku University Museum aims to create scientific innovation and support the research and education activities of the Tohoku University using specimens collected by the

museum. To attain this goal, the Museum will 1) develop new research methods that solve current scientific questions related to natural history; 2) apply their research outcomes to educational programs for students; and 3) perform outreach and share our results with society. Globalization is another important issue confronting our Museum. To address this issue, the University Museum will establish a cooperative international network with other museums and research institutes in Japan, USA, and the EU countries. In addition, as a depository center of Tohoku University, the Museum supports activities related to preservation of significant scientific specimens, as well as scientific research and education using these specimens, both inside and outside the university. In pursuit of Tohoku University's mission of "Achieving World-Class Status and Leaping Ahead," the Museum will develop research and educational resources and develop advanced technologies. We will also contribute to the vision of "Leading the Post-Earthquake Restoration and Regeneration." To this end, we will actively promote the projects of restoration for damaged museums, as well as publicize our archiving project related to the 2011 Great East Japan Earthquake.

- OThe Botanical Garden will establish a foundation for a comprehensive center for botanical research while providing information and materials regarding this field, promoting research on the preservation of biodiversity and changes in ecosystems, and enhancing interdisciplinary exchanges by leveraging its international network. It will improve management efficiency and measures that ensure safety inside the Botanical Gardens, as well as develop superior content as sites for the University's student courses and continuing education.
- Over the coming 4 years, the Tohoku University Archives will address the following tasks in order to contribute to society by utilizing the historical information of Tohoku University, and to support the University's mission of being fully open to society: (1) establishing a structure for managing and publicizing the Historical Public Records and Archives, in cooperation with the University's administrative departments; (2) preparing and enhancing the "Tohoku University Graduate Archives"; (3) by preparing digital archives creating an environment that promotes sharing of the collected historical information inside and outside the University; and (4) developing opportunities to disseminate information about the collected contents and our research outcomes, in forms such as exhibits, lecture meetings, seminars, etc.

[Strategic Focus and Major Policies]

1. Developing innovative liberal arts education and specialized education that utilizes academic resources

We will establish a system in which the academic resources of each organization of the Center are efficiently utilized as educational resources for liberal arts and specialized education. We will also improve the required equipment and facilities. In particular, we will:

 Convert academic resources into educational resources, and develop innovative curator-training and specialized education courses, by utilizing state-of-the-art information technologies.

- (2) Provide education by effectively utilizing the permanent exhibits of the Museum of Natural History, in particular the three-dimensional imaging systems (including (X-ray CT and magnetic resonance imaging).
- (3) Maintain an environment that guarantees the safety of visitors by enhancing countermeasures against factors such as naturally fallen trees and wild animals, and building the capacity of our staff. We will develop and enhance content that contribute to our education and research, as well as our public exhibition events. Also, we will improve our outreach and enhance the use of this content for education, research, and continuing education.
- (4) Aim to eliminate existing undisclosed records by intensely focusing on the arrangement and publication of historical official documents.
- (5) Promote the arrangement and publication of the "Tohoku University Graduate Archives," according to a previously developed plan, and improve the archive content by encouraging graduates and other related individuals to get involved.
- (6) Improve the digital archives and establish an environment for sharing them inside and outside the Museum.
- (7)Continuously organize permanent and special exhibitions, and disseminate information to society in forms such as books, pictorial records, and publications based on the exhibits' outcomes.
- 2. Perform novel research utilizing academic records and specimens and promote interdisciplinary cooperation

We will establish a system and improve our equipment and facilities so that the academic resources owned by Tohoku University are efficiently utilized as research resources. We are also developing a novel style of research on academic resources, as well as promoting interdisciplinary cooperation through these resources. Specifically, we will:

- Convert the University's academic resources into information resources (e.g., develop a database), efficiently manage the common utility facilities of the University, and reinforce collaborations between international and domestic research projects and institutes.
- (2) Strongly support liberal arts education. Specifically, we will improve and enhance the university-wide course "People at Tohoku University," which is taken by all students, and train the staff about the University's history.
- (3) Proactively organize exhibits, lecture meetings, seminars, and other events related to the University's history. These events will occur continuously every year.
- (4) Continuously organize permanent and special exhibitions, and disseminate information to society in forms such as books, pictorial records, and publications based on the exhibits' outcomes.

3. Promoting and developing supportive activities for the post-earthquake restoration, and archiving the East Japan Great Earthquake Disaster Projects

We will continue to develop various projects aimed at supporting post-earthquake restoration, as well as the Project on the Archive of the East Japan Great Earthquake, featuring the strengths of each organization in our Center. In particular, we will:

- (1) Continue and develop the restoration of damaged museums, and promote the project on publication of the cloud data archive on Earthquake remains, in collaboration with private companies. We will also actively disseminate information at occasions such as the UN World Conference on Disaster Risk Reduction.
- (2) Continue the damaged museum restoration support project and promote the project on publication of cloud data archive on the Earthquake remains.
- (3) In close cooperation with the administrative department of the University, we will consider and develop an appropriate system for management and disclosure of official records (especially of Historical Public Records and Archives), as well as establish a training program so that this system works efficiently.
- (4) We will promote the organization and publication of records, with special focus on historical official records owned by Tohoku University Archives, with the goal of eliminating undisclosed records. By improving the digital archives, we also hope to establish an environment in which the collected historical information is widely shared both inside and outside our University.
- 4. Promoting the use of academic resources by leveraging advanced technology

Through industrial-academic cooperation, we will promote the use of academic resources by utilizing advanced technology. In particular, we will:

- (1) Promote the use of academic resources through the digitization of academic specimens using three-dimensional imaging technology, as well as the archiving and publication of Earthquake remains.
- (2) Promote use of the common-utility facilities of the University such as the high-resolution X-ray CT apparatus, as well as the collected records and specimens; promote collaborations with international research projects including the Integrated Ocean Drilling Program (IODP); proactively provide support to the Ministry of the Environment's "Monitoring Site 1000 Project" and other agencies; and utilize structures that promote cooperative research.
- 5. Promoting and developing collaborative activities with society at large, and enhancing cooperation with regional and international museums by utilizing academic resources

We will promote cooperation between the University and regional communities and contribute to the creation and enhancement of knowledge-based communities by organizing special exhibits, public lecture meetings, and public-relations events that utilize academic resources both inside and outside the University.

- (1) In addition to organizing special exhibits, we will reinforce our cooperation with museums in the Sendai City area and make an effort to establish a domestic and international inter-museum cooperation structure.
- (2) We will promote collaborations via various opportunities (special exhibits, public lecture meetings, experimental events, etc.) and organizations (SMMA: Sendai Miyagi Museum Alliance, the Smithsonian Institution National Museum of Natural History, etc.). Also, we will maintain an environment that guarantees the safety of visitors by enhancing countermeasures against factors such as naturally fallen trees and wild animals, and by building the capacity of our staff. We will develop and enhance content that contributes to education, research, and public viewing, and improve our outreach measures to enhance opportunities for our facilities to be used as venues for education, research, and continuing education.

Center for Information Technology in Education

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Center for Information Technology in Education, founded in 2009 as one of the Inter-Department Institutes for Education and Research, plays a central role in providing IT services in education, based on its own research and development activities on information systems and services. These systems and services are considered necessary to further enhance the value of Liberal Education, as well as faculty-specific and graduate education. Powered by information sciences and technologies, our mission is to support the educational ideals of Tohoku University: fostering highly sophisticated and humane leaders and training creative researchers and advanced professionals.

[Organizational Policies for Reinforcing Functions (-2017)]

- Owe aim to actualize the faculty's vision of further improving the educational value of Tohoku University with information sciences and technologies, organized under the "Digital Campus Project." We will improve the computer literacy aspects of modern liberal arts education within the Liberal Education program, promote additional research and development, and improve the surrounding environment to support modern liberal arts education and promote its growth. We also promote research and development on educational infrastructure for computer literacy, as well as provide such infrastructure, in order to support the advancement and diversification of education. The enrichment and utilization of such infrastructure will contribute to the embodiment, creation, and sharing of knowledge.
- OAs a core member of the Information Synergy Organization, we play a central role in addressing issues of information infrastructure in education. Meanwhile, we are reviewing our roles in the university as a whole and applying our quickly expanding knowledge of information technologies to help improve the quality of education.

[Strategic Focus and Major Policies]

1. Designing new information education in Liberal Education

Under the new government guidelines for teaching, "Information" was introduced as a common high-school subject in 2013. In response to this development, it is necessary to review the content of "Information Science Foundation Course" (third version), which is offered as a part of the Tohoku University Liberal Education program. Our Division for Information Science Education and the Committee for Basic Information Science Foundation Course," while keeping in mind appropriate educational approaches for the younger generation (called "Digital Natives") and educational programs targeting international students. We will provide extensive lecture notes and study materials to be ready for classes

launched in 2016. We will also review and renew our ICL (Information and Computer Literacy) system to further enrich the study environment for students.

2. Expanding and rationalizing information services and content for education

2015 will mark the 5-year point since the previous renewal of the CALL (Computer Assisted Language Learning) and ICL systems. By next year, we will partially integrate functions of the two systems by allowing cross-referencing of user data and study materials via sharing of the file servers. We will also improve usability of the systems to allow responses to various educational needs at a classroom level. An e-learning platform called NetAcademy 2 is provided to all members of the university for the purposes of foreign language study. To reinforce this system, the Division for Media Education will lead the gradual transition to new study materials that support the new operating system and software. While paying close attention to its security, feasibility, and information protection, we will consider utilizing ASPs (Application Service Providers) in pursing this work.

3. Introducing a platform for information technology for education at a university-wide level

2015 will also mark the 5-year point since the introduction of the second-generation ISTU system. Our Division for Distance Learning will lead the effort to address issues raised by users since then. We will ensure that the ISTU will be introduced widely into classes as a platform for education management, and also support the further dissemination and publication of the program.

Cyclotron and Radioisotope Center

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Cyclotron and Radioisotope Center conducts advanced specialized education and research in fundamental areas of science and technology for the 21st century, including accelerators, X-rays, radiation, and radioisotope (RI) utilization. The Center also conducts interdisciplinary research to yield world-class research results, as well as train scientists who will lead the next generation of radiation science.

[Organizational Policies for Reinforcing Functions (-2017)]

- OThe basic mission of the Center is to promote the widespread use of accelerators, X-rays, radiation, and RI utilization as a fundamental aspect of science and technology in the 21st century. To this end, we will expand our educational activities and conduct research in interdisciplinary fields such as multi-purpose use of cyclotrons and radiation.
- OWe will establish a research environment and a system for joint use of cyclotron science research facilities, both of which are essential for "Achieving World-Class Status and Leaping Ahead" As a center for radiation education, we will strongly support joint use of our facilities by researchers inside and outside of the University.

[Strategic Focus and Major Policies]

- 1. Functional Collaboration with Tohoku University Hospital
 - The University Hospital PET Clinical Study Unit has been established within the Clinical Research, Innovation and Education Center of Tohoku University Hospital, and the Center President is also serving as the Unit Leader for clinical trials using PET in the hospital.
- 2. Neutron Science Research by High-intensity Cyclotron Beam

We will increase the cyclotron beam intensity by 100-fold in order to develop a high-intensity, high-quality neutron beam. This beam is intended to pioneer neutron science, with a focus on Boron Neutron Capture Therapy (BNCT). The high-quality neutron beam that is developed over the course of this project will expand a wide range of research areas, from materials science and engineering through nuclear and elementary particle physics, using spin-polarized neutrons and neutron imaging. Using the high-intensity neutron beam, we will accelerate our industry-academic collaboration to investigate the mechanisms of radiation damage of semiconductors. The number of quantum beams of our Center will be increased to pioneer new areas of neutron science, both within the University and in the context of industry-academic collaboration.

3. Growing into a World-Class PET Probe Development Center

We will collaborate with a number of research institutes in Japan and abroad to increase our capabilities to conduct applied research. Close collaboration with global corporations

in the field of PET will lead us to commercialize PET probes that will be widely used throughout the world. We will maintain the research and development project of the tau probe at the core of our activities, with the goal of growing into a world-class PET probe development center. We aim to discover novel PET agents targeting neurodegenerative disease, brain tumor, cancer treatment, and biological drugs, and enhance the product development pipeline for new agents, as well as establish a manufacturing environment for high-quality PET probes that are compliant with GMP.

4. Molecular Imaging Research

Through collaboration with the University Hospital, the PET facility of this center has been renewed to "Molecular Imaging Research Center". For efficient collaboration with pharmaceutical development research, we will conduct molecular imaging research on the following topics: (1) clinical PET research including early detection and evaluation of dementia, neuropsychiatry, health science, and clinical pharmacology: (2) construction of a suitable environment for research on cancer diagnosis and treatment; and (3) development of a novel PET scanner in collaboration with the Graduate School of Engineering.

Improvement of research environment will facilitate industry–academic collaboration with external users such as pharmaceutical manufacturers. We will also prepare a PR exhibition room aimed at promoting the general public's awareness and understanding of clinical research. We hope this exhibition room will encourage ordinary people to participate in our clinical research activities.

5. Building the "Environmental Imaging Center" and Expanding Universitywide Radiation Management

This Center will consolidate multiple imaging technologies including PET, SPECT, X-ray CT, MRI, and optical imaging, so that various subjects in the environment can be analyzed from different perspectives. For this purpose, we will establish a new "Environmental Imaging Center," which will offer labs and training for radiation research and education, especially the handling of RI.

New Industry Creation Hatchery Center

[Faculty's Vision (Basic Philosophy and Mission)]

OThe New Industry Creation Hatchery Center is an Inter-Department Institute for Education and Research. We promote practical applications of new technologies that respond to societal needs, as well as the creation of new industrial fields. Our mission is to promote joint studies in collaboration with industry, and to engage in unique cutting-edge research and development.

[Organizational Policies for Reinforcing Functions (-2017)]

OWe will promot-e practical applications of academic research results in partnership with industry.

OWe will support quick reconstruction after the 2011 Great East Japan Earthquake and Tsunami. OWe will promote an environment that supports research activities.

OWe will ensure a clear assignment of roles in the university and support a healthy organizational administration.

[Strategic Focus and Major Policies]

1. Promoting practical applications of academic research results in partnership with industry

We will put academic research results into practical use as soon as possible by establishing a basis for interdisciplinary research projects in partnership with industry. We continue to generate research results for the ultimate purpose of firmly establishing our institute as a research center in related industries, both by contributing to society and by improving the social image of the university through the political applications of our work. We will also reinforce our partnership with the international community in order to maintain and expand our international joint research program.

2. Quick reconstruction of local industry after the 2011 Great East Japan Earthquake and Tsunami

We will work to restore local industry by providing companies with readily applicable research results. We will design local reconstruction strategies by reinforcing partnerships with municipal governments and the business community, as well as disseminate new technologies and concepts that facilitate post-disaster reconstruction. We will reinforce our partnerships with local communities to promote capacity development and shared use of machines and equipment among local businesses. Our position as a center for industrial-academic collaboration will leverage an extensive professional network to promote greater awareness of our social engagement and further building of trust with industry and municipal governments.

3. Developing the environment to support research activities

We will expand our research programs by obtaining external funding, including funding from competitive funding sources, commissions from businesses, joint research, and scholarship programs. We will develop a system that allows for smoother implementation of research projects. In addition, we will design and run trials of models of the university's previous efforts at industrial-academic collaboration.

4. Ensuring clear assignment of roles in the university and improving organizational administration

We will further enrich our research projects by ensuring a clear assignment of roles within the university, as well as a solid financial standard. We will showcase our technological outcomes for energy efficiency, including a reduced environmental footprint at the entrance of Aobayama Subway; promote further development of our research facilities; and publicize our cutting-edge technologies.

Technology Center for Research and Education Activities

[Faculty's Vision (Basic Philosophy and Mission)]

OThe Technology Center for Research and Education Activities engages in development and administration of large-scale research facilities that encourage research and development. By doing so, the Center contributes to the shared use of the facility among faculty members and researchers, and further promotes the advancement, fusion, and social engagement of research and education activities. The Center is one of the Inter-Department Institutes for Education and Research, which comprise three facilities: the Center for Low Temperature Science, the Electron Microscopy Center, and the Technical Support Center.

The Center for Low Temperature Science ensures the stable supply of liquid helium provides instructions on cryogenic technologies, their safety management and training and promotes joint-use research on such technologies within the university. Furthermore, in cooperation with other departments, the Center supports research and education in each department's field. The Electron Microscopy Center provides researchers inside and outside the university with advanced technologies for structural analysis of advanced materials. The Technical Support Center makes research equipment and facilities designated for shared use available to researchers inside and outside the university, in partnership with the faculties of other institutions.

[Organizational Policies for Reinforcing Functions (-2017)]

OThe mission of the Center for Low-Temperature Science is to ensure the stable supply of liquid helium for scientific research at the university. In order to embody and further develop the mission, the Center will work to achieve even more stable operations as one of the Inter-Department Institutes for Education and Research, and to systematically improve its facilities and organizational technical capabilities. It also promotes technical instruction and knowledge-sharing aimed at improving the safety and security of users, and provides broad-ranging and advanced support in the field of low-temperature science throughout the university.

The Electron Microscopy Center supports the interdisciplinary infrastructure for structuralanalysis technologies required by researchers both inside and outside the university, in the spirit of "Practice-Oriented Research and Education" and according to the principle of "Research First." Through seminars and tutorials, it also provides researchers and students with rapidly advancing electron-microscopy technologies, in order to accelerate the dramatic academic development of these methods. It will also create an environment suitable for effective operation and maintenance of the electron microscopy system, facilitate the development of related technologies, and establish support mechanisms for researchers and students inside and outside the university. The Center will function as a hub for the next generation of unprecedented electron-microscopy technologies. The Center's work not only explores the modern world of material sciences, including nanotechnology and soft materials, but also seeks to improve technologies aimed at analyzing materials that can improve the safety and security of our society.

The Technical Support Center seeks ways to improve the accessibility of joint research facilities and equipment that benefit researchers inside and outside the university. The Center will also draft the third Master Plan for Improving Facilities at Tohoku University (2016–2021) and implement the facility improvements described in that plan.

[Strategic Focus and Major Policies]

1. Stable supply of liquid helium required for low-temperature research projects (Center for Low Temperature Science)

The Center will work to minimize the loss of helium in the recycling loop by raising awareness and providing technical instruction regarding the proper usage of liquid helium among researchers. The Center will systematically reinforce the storage capacity of recycling-loop systems for liquid helium, and enable the maintenance of long-term recycling loops and supply of liquid helium, even in the case of emergency.

 Improving technical capabilities and supporting the career development of technical staff members engaged in the helium supply (Center for Low Temperature Science)

The Center will support the improvement of technical capabilities and enhance the careers of technical staff members who are engaged in this operation, especially by actively supporting these members' acquisition of pertinent qualifications. The Center for Low Temperature Science administers the Division of Low Temperature Science in the Katahira Campus, as well as the Division of Low Temperature Physics in the Aobayama District. The Center encourages a continuous exchange and sharing of technological information between the two divisions in order to improve each other's technical capabilities and further support nationwide exchanges and disclosures of technologies related to low-temperature science.

- 3. Teaching, training, and sharing information on low-temperature science to improve safety and security (Center for Low Temperature Science) The Center maintains a research environment suitable for safe and secure low-temperature experiments, and provides instruction regarding which rules to follow and which low-temperature technologies should be mastered in order to contribute to the development of scientific research. The Center continues to provide relevant information through its website and journals.
- 4. Facility improvements to efficiently promote research and training of experts (Center for Low Temperature Science)

The Center is promoting the development of an inter-department laboratory in which we

plan to install a universal Physical Property Measurement System (PPMS); the establishment of this system is a component of the Master Plan for Improving Facilities. By doing so, the Center achieves qualitative and quantitative enhancement of joint experiments that have been in great demand for over 10 years, and provides a place for efficient research activities and capacity development to leverage the resultant opportunities.

5. Developing technologies for aberration-corrected electron microscopes (Electron Microscopy Center)

The Center will organize regular seminars and tutorials to provide a wide range of users with the aberration-corrected electron microscope that was introduced to replace the previous 1-MeV electron microscope, which was damaged in the 2011 Great East Japan Earthquake and Tsunami.

6. Establishing focused ion-beam processing devices and technologies to produce samples (Electron Microscopy Center)

Among several fast-growing technologies aimed at generating samples, the Center focuses on extraction of samples from local areas using a focused ion-beam device. Furthermore, the Center seeks to make the relevant methods available to users and to further develop technologies that reduce damage.

- 7. Collaborating with nanotechnology platforms (Electron Microscopy Center) As an implementing institute of the Nanotechnology Platform Project of the Ministry of Education, Culture, Sports, Science and Technology of Japan, the Center will make the most advanced equipment available to a wide range of researchers in industry and universities.
- 8. Designing the third Master Plan for Improving Facilities (2016–2012) (Technical Support Center)

The Center will improve the facilities set out by the third Master Plan for Improving Facilities (2016–2021) to encourage further shared use of the facility.

Cyberscience Center

[Faculty's Vision (Basic Philosophy and Mission)]

OBased on its world-class information infrastructure, Cyberscience Center conducts research and development in cutting-edge technologies that will be essential for the next generation of academic information infrastructure. We will be rolling out an environment designed for unique research that will contribute to the training of researchers. The Center's enhanced ability to impart academic information from Tohoku University will contribute to academic research, as well as industry, culture, and the surrounding region.

As a Joint Usage / Research Center that is recognized by the Ministry of Education, Culture, Sports, Science and Technology of Japan, we are offering our large-scale scientific computation resources to universities and other institutions across Japan, as well as conducting cutting-edge research as a national center for next-generation academic information infrastructure.

[Organizational Policies for Reinforcing Functions (-2017)]

- OWe will be providing and operating one of the most advanced information infrastructures in the world. We hope to become a research environment that is open to excellent world-class researchers and where students are trained to assume leadership roles in the next generation. We will also be improving our research and development activities in order to contribute to the advancement of the fields of information and communications, computational science, and computer science.
- Oln conjunction with other graduate schools, we will be contributing to an educational reform program that seeks to train interdisciplinary global leaders. Moreover, as a central organization that plays a central role in the university-wide information strategy, we will be contributing to the research, education, and operations of our University.

[Strategic Focus and Major Policies]

1. Strategic Strengthening of Supercomputing Infrastructure and Training As a supercomputing facility at a university that is jointly used by people around the country, as well as a second-level supercomputer center that supports the leading supercomputers in Japan, we will be maintaining and operating the world's best high-performance supercomputers. We will be considering operational systems that allow us to closely collaborate with supercomputer centers in the University, in terms of both maintenance and operation, in order to strategically elevate the performance of the supercomputer centers of Tohoku University to become among the best in the world. Our collaborative research at the high-performance computing center and related educational activities will facilitate the training of globally minded interdisciplinary researchers in computer science.

- 2. Provision and Operation of the University-wide Information Infrastructure We will plan, construct, and operate the university-wide information infrastructure, playing a central role in realizing the action plan that was developed by the information synergy organization. We will be working on improving security to protect the information assets of our University, operating a hosting service to optimize the information system, and utilizing groupware that provides a foundation for operational improvements and efficiency.
- 3. Research and Development of Fundamental Cyber-Information and Communications Technologies and Training

We will be strategically rolling out research and development projects in fundamental information and communications technologies, including the physical and logical layers of networks. These include high-performance, high-speed, and high-availability networks, as well as their associated operation and management technologies; network middleware technologies to enhance power saving, efficiency, security, and disaster resilience; application technologies including health support, seniors' life support, disaster communications, cyber real application system; green ICT, service operation and management technologies based on the network utilization policies; and information security regulations and information ethics. We will train people to become network engineers, service architects, and data scientists who possess the advanced knowledge and technical expertise necessary to support these fields.

4. Development of Cyber-Medical Technologies and Training

We will be driving the development in advanced cyber-medical technologies including ubiquitous sensors, fusion, wireless mobile networks, big-data analysis, and cloud-based medical information processing. Through the development of information technologies, these efforts will help to improve the medical environment in disaster-affected areas, as well as remote areas, isolated islands, and ambulance tracks. Cyber-science will also be applied to nursing care for the elderly and the disabled. In addition, we will be training researchers who possess advanced technical knowledge in these fields.

University Library

📁 University Library

[Faculty's Vision (Basic Philosophy and Mission)]

OThe University Library plays an important role in providing academic information, and thus serves as a central source of information. We support university education and research activities by collecting, creating, organizing, and providing information for our researchers, students, and faculty members. We are contributing to academic advancement and cultural enrichment in the local community, throughout domestic, and abroad.

[Organizational Policies for Reinforcing Functions (-2017)]

- OAs a center for providing academic information, we aim to improve the research environment so that it helps us to "Achieve World-Class Status and Leap Ahead" by reinforcing academic information resources (books, electronic journals and databases).
- OWe provide a venue for students to actively engage in study and intellectual exchange with each other. To this end, we aim to improve the study environment at each campus library.
- OWe will engage in social and community programs (exhibitions and public lectures) to share the wisdom gained from University Library resources for the benefit of society, in order to advance academic research in the local community, throughout domestic, and abroad. In addition, we seek to enrich our culture.

[Strategic Focus and Major Policies]

1. Advancing the academic information infrastructure plan

We continue to review the plan for improving the academic information infrastructure (electronic journals and databases). At the same time, we are working with the Japan Alliance of University Library Consortia for E-Resources (JUSTICE) to promote the stable and continuous provision of academic information at public and private universities in Japan, as well as to discuss the optimal scope of the research environment for "Achieving World-Class Status and Leaping Ahead."

- 2. Sharing academic results through Tohoku University Repository We are further developing the Tohoku University Repository (TOUR) while comprehensively collecting dissertations, which need to be published electronically.
- 3. Developing a study environment at each library We remodeled the main building of the University Library to develop a Learning Commons (2012–2014) and launched a new library at the new Aobayama campus (2014 and onward). We continue this effort to develop the Medical Library, the Kita Aobayama Library, and the Engineering Library, in order to promote more active learning and intellectual exchange.
- Sharing knowledge for the benefit of society and the community We will engage in activities aimed at sharing knowledge obtained from research by pro-

moting the maximum utilization of University Library resources for the benefit of society (e.g., by holding exhibitions and lectures). We will also host regular exhibitions to provide tourist attractions for the area.

5. Passing down the records of the 2011 Great East Japan Earthquake and Tsunami

We continue to collect, preserve, and publish records of the 2011 Great East Japan Earthquake and Tsunami at our library dedicated to the disaster, and to pass down the records to future generations so that they remember this event. University Hospital

🚺 University Hospital

[Faculty's Vision (Basic Philosophy and Mission)]

- OThe fundamental ideal of our hospital is "advanced medicine with a focus on patient care." We will actively engage in the treatment of intractable diseases, transplant medicine, and other aspects of advanced healthcare, and also develop, practice, and apply cutting-edge medical technologies, thereby contributing to the welfare of the Japanese people. Moreover, we will train healthcare professionals who have well-rounded personalities and the advanced knowledge and skills necessary to meet society's demands.
- Oln order to improve the health of human beings and establish new therapeutic methods, the hospital will promote practical application of drugs and medical devices by extensively searching for research seeds inside and outside the campus, as well as by continuously supporting research and development—from basic research to translational research, followed by clinical research and clinical trials.

[Organizational Policies for Reinforcing Functions (-2017)]

- Oln order to maintain and expand on the fundamental ideal of "advanced medicine with a focus on patient care," we will establish a new building that will serve as a central part of the hospital for general medicine. Thus, we will further expand our cutting-edge medical care and establish an appropriate care cycle that includes both prevention and treatment. By doing so, we aim to improve the quality and safety of healthcare.
- OTo pursue the goal of "Achieving World-Class Status and Leaping Ahead," in preparation for the internationalization of hospital functions, we will train medical professionals as international healthcare staff, as well as establish and expand an international network among the hospitals that serve as centers for advanced healthcare in various countries. Thus, we will actively prepare our system to accept patients from abroad.
- OAs a center for innovative, cutting-edge healthcare in Japan, we will strengthen the functions of the Clinical Research, Innovation, and Education Center to promote clinical and translational research and train specialists. We will also engage in projects related to practical application of medical sciences, from the perspective of international expansion, in collaboration with faculty involved in healthcare throughout the entire university, as well as in related Ministries and companies.
- OUnder the leadership of the Center for Reconstruction of Community Medicine and in collaboration with medical institutions and physicians' associations, we will address the uneven distribution of physicians; establish a new system for the provision of community healthcare based on ICT, which will enable us to respond to changes in social structure including the aging society; train physicians with the motivation and capability to provide community healthcare; and design a healthcare system appropriate for responding to disasters.

[Strategic Focus and Major Policies]

- 1. Practice of highly advanced healthcare and establishment of an appropriate care cycle (medical practice)
 - Enhancement of medical care functions by constructing a new central hospital building As an advanced treatment hospital, Tohoku University Hospital will promote highly advanced healthcare. In the new operation and medical check building that will be completed in fiscal year 2016, we will introduce five irradiation devices on the first basement level and add several new facilities elsewhere in the building: a new advanced emergency room on the first floor; materials and pathology departments on the second floor; a total of 17 operating rooms, including a hybrid operating room, an operating room capable of robotic surgery, and an operating room with an MRI device, on the third floor; and a total of 34 ICUs on the fourth floor. By doing so, we will strengthen the facilities and improve the environment so that we can meet the increasing demand for highly advanced healthcare and respond to large-scale disasters. By making our hospital a functional center, we will facilitate advanced healthcare. (The building is planned to open in 2017.)
 - ♦ Foundation of the Pediatric Oncology Center (tentative name)

We will establish the Pediatric Oncology Center (tentative name) to accept patients with pediatric cancer from the Kanto area and the northern regions, and establish a foundation for research and development of new therapeutic methods.

- Establishment of the Department of Gene Diagnosis and Therapy (tentative name) We will create the Department of Gene Diagnosis and Therapy (tentative name), aimed at establishing a system for diagnosis of genetic disorders and expansion of outpatient services, including genetic counseling and consultation.
- \Diamond Promotion of core functions for transplant medicine

We will strengthen our functions as a core hospital for transplant medicine in the Tohoku area, where we are involved in transplants of all organs, including heart, lung, liver, kidney and pancreas.

Promotion of high-level dentistry and collaborations between medicine and dentistry In order to establish a system for highly advanced dental care, we will promote threedimensional digitization of dental treatment in the fields of prosthetic dentistry, including dental implants, conservative dentistry, and orthodontic dentistry, as well as surgery in the fields of dentistry and oral surgery.

Moreover, we will improve the quality of healthcare by setting up the Office for Perioperative Oral Management (tentative name) and strengthening collaborations between medicine and dentistry.

\Diamond Promotion of computerization

By strengthening the function of the Medical IT Center, we will promote computerization of our hospital to achieve increased efficiency.

♦ Collaboration in community healthcare, etc.

In order to enhance the comprehensive community care system, we will promote not only collaborations with other hospitals or departments facilitated by the Community Medical Cooperation Office, but also collaborations with home care services and care facilities. As a cancer-care liaison hospital of Miyagi prefecture, we will support the practice of such hospitals in each district within the community, via engaging in several projects: training of specialized healthcare professionals, cancer registration, and cancer consultation and support. We will proceed with standardization of cancer therapies in Miyagi prefecture and the Tohoku area, and improve the systems for provision of these therapies and exchange of clinicians.

Education and training of leaders in promoting advancement of medicine and healthcare and medical professionals with well-rounded characters Accepting more junior residents

We will strengthen the support system for residents and increase our public-relations activities related to residency by expanding the Graduate Medical Education Center. We also enhance the instruction system by strengthening the education of attending physicians and improving the residency curriculum, utilizing the Comprehensive Education Center for Community Medicine (Clinical Skills Laboratory) and the Advanced Medical Training Center.

 \Diamond Commitment to training of community healthcare professionals

We will introduce a curriculum that teaches medical students the meaning and importance of community healthcare. In junior residency, we will introduce the Community Healthcare Program, which entails clinical training at related facilities outside the campus to allow students to accumulate experience in actual community healthcare, 10 months at a tertiary emergency medical facility, and 6 months at a secondary emergency medical facility). In senior residency, we will introduce a program for training general practitioners and family physicians (the "base facilities for community education" [certified as a senior residency program in family medicine by the Japan Primary Care Association] outside the campus; in this program, general practitioners and family physicians will be trained by the university and the community as one unit, using ICT).

We will strengthen the collaboration with Organization for Physicians' Carrier Promotion of Miyagi Prefecture to promote short-term overseas visiting program for junior residents. We will enhance resident education in collaboration with overseas associations of Japanese physicians, and also invite attending physicians from overseas for clinical training.

Education in advanced healthcare and education of specialized healthcare professionals

We will improve the education of young physicians in cutting-edge healthcare, utilizing

the Advanced Medical Training Center. We aim to actively help nurses and medical technicians to obtain high-level qualifications in healthcare. Moreover, we will facilitate education of healthcare professionals specialized in oncology by utilizing the educational functions of the university hospital, including the Tohoku Cancer Professional Training Promotion Plan. We will also train medical physicists and appropriately distribute them throughout Miyagi prefecture. We will develop an education and training program for dental implants, and train reliable and highly professional practitioners (dentists, dental technicians, dental hygienists) who will play a major role in next-generation dental implant treatment.

♦ Commitment to training of physician-scientists

In order to help students understand the importance of clinical research, we will provide them with opportunities to make presentations at academic meetings and prepare papers during their clinical training before graduation. To instill a better understanding of the significance of clinical research, we will provide opportunities for our students to engage in specialized research in each department during their clinical training in the sixth year. For residents, we will hold seminars related to clinical research and medical statistics and encourage them to actively participate in clinical research and clinical trials.

- Establishment and operation of the accommodation facility for residents, etc. To improve the training environment for residents and other personnel, we will establish and operate an accommodation facility intended mainly for residents.

Utilizing the Core Clinical Study Hospitals and the Translational Research

Network Project, we will strengthen the function of the Clinical Research, Innovation, and Education Center, Tohoku University Hospital (CRIETO), aiming to establish it as an independent Academic Research Organization (ARO) within 5 years. We will improve the Tohoku Translational Research Center Development Network (TTN) and promote clinical research and clinical trials. In collaboration with the United Centers for Advanced Research and Translational Medicine at the Graduate School of Medicine, we aim to actively support the development of new medical devices and drugs and facilitate the successful practical application of these products. Under the leadership of the CRIETO, we will promote rapid development of drugs and medical devices based on our evaluation of markets and support for such development, considering matches with sponsor companies and applications for regulatory approval. We also aim to form a foundation for research in regenerative medicine, including cell therapy. By founding the Department for Bed Solution Program, Academic Science Unit, we will search for research
seeds owned by companies that meet the needs of medical practitioners, and explore new development projects for these seeds. These efforts should lead to the establishment of a model for medical practice in which industry and universities cooperate.

♦ Activities of the Medical Science Promotion Committee

This committee will create a university-wide system for the promotion of medical science through close collaboration among a total of 16 faculties and schools. In addition, the committee will assess on-campus resources and promote the search for research seeds and new discoveries, based on collaborations within the graduate school and university, or with parties outside the university. The committee will also implement speedy and innovative face-to-face discussions by employing administrators and building networks within the hospital, as well as inside and outside the university. The committee cooperates with the Miyagi Knowledge-based Medical Device Cluster project to promote development of medical devices through enhancement of industry-academia collaboration.

 \bigcirc Improvement of a clinical sample bank

In collaboration with the Graduate School of Medicine and Tohoku Medical Megabank Organization, we will proceed with banking of clinical samples collected by faculty members in clinical fields, in order to establish a research environment that enables verification of the results of basic research in human diseases and the search for biomarkers. To prepare for the banking efforts, we will collect and save information about the samples stocked at individual departments, as well as the list of diseases in the database.

4. Promotion of internationalization of the hospital and a public-relations system that is open to society

$\diamondsuit\ensuremath{\mathsf{C}}$ Creation of the Office for Promotion of Internationalization

We will establish the Office for Promotion of Internationalization, which will aim at implementation of international remote conferences using a network conference system, support for international remote medical care, and dissemination of international information through a multilingual website. We will improve our healthcare environment with the goal of accepting non-Japanese patients, and pursue active exchange of personnel with overseas core hospitals and other institutions.

\Diamond A public-relations system that is open to society

Under the leadership of Public Relations Office, we will actively disseminate information to the community and the world through our website, publications, and mass media. The Office aims to publish 30 press releases per year. We are also holding Tohoku University Hospital Open Lectures, aimed at the general public, twice per year.

5. Promotion of restoration of healthcare in disaster areas and local communities

 \Diamond Establishment of a community healthcare model

In collaboration with various government agencies, associated hospitals, and physicians'

associations, we will propose regulatory and other measures to address the uneven distribution of physicians. These measures will include assistance with career development for the recipients of scholarships that defray school-related expenses. We will also establish zones for medical practice centered around core hospitals, and promote a community healthcare model in which community healthcare in each medical practice zone is ensured by dispatching doctors to the small and medium-sized healthcare facilities in rotation from each core hospital.

Working together with the Graduate School of Medicine, the Tohoku Medical Megabank Organization, and other organizations, we aim to establish and adapt a system for continuous support for healthcare in disaster areas and local communities.

♦ Establishment of medical care system for disasters

With the goal of establishing a healthcare system that can respond to disasters and meet the international standard for such responses in Japan, we will express our opinions to government agencies in order to standardize and improve coordination of disaster-related medical care, design a system for data backup in preparation for disaster, establish a foundation for collaborations related to information on community healthcare and nursing care in cases of widespread or large-scale disasters, and establish a disaster-prevention system. We will also establish a disaster-related medical care system in tandem with the International Research Institute of Disaster Science.

 $\diamondsuit\ensuremath{\mathsf{Creation}}$ and use of the information network

We will create an information network for disaster medical care and community healthcare that primarily serves Miyagi prefecture. In order to improve the quality and safety of healthcare and contribute to patient-oriented community healthcare, during both ordinary times and emergencies, we will coordinate our efforts with the Miyagi Medical and Welfare Information Network (MMWIN) to reconstruct, promote, and ensure the wide application of community healthcare based on the "Miyagi model."

In order to alleviate the traffic jam around the hospital caused by the increased numbers of inpatients and outpatients, we will create a more efficient traffic line by effectively using long-term parking lots or constructing a street that connects the hospital entrance to Kimachi-dori. In addition to this short-term solution, we will also establish a multi-level parking garage, thereby further improving the service to patients. In the future, we will secure a site close to Seiryo area for a new building that can accommodate some hospital functions.

\diamondsuit Seismic retrofitting of facilities

We will implement seismic retrofitting and take other necessary measures for Building No. 3 of the School of Medicine, as well as other buildings that were damaged by the Great East Japan Earthquake.

 Sustainable, stable hospital management and improvement of organizational and operational efficiency (management, organization)

◇Establishment of stable management base

We will attempt to secure more inpatients and accelerate specialization in advanced healthcare by promoting hospital-hospital and hospital-clinic collaboration, as well as by using beds more flexibly. Moreover, we will strengthen the Administrative Bureau by training specialized administrative assistants and organizing the Bureau flexibly, in order to both make management more efficient and increase revenue.

Organizational operation under appropriate governance

We will comprehensively manage the organizations in the university hospital and promote sharing of information and ideas. We will make sure that ethical principles in medicine are followed, and that medical safety is guaranteed. As an open hospital, we will actively hire female healthcare professionals and disabled individuals; establish daycare facilities in the hospital; support staff members who are returning to work after marriage, childbirth, and childcare; and increase the flexibility of work schedule. By doing so, we will attract public attention as a workplace that respects the needs of disabled individuals and women (e.g., by expanding the daycare facilities in the hospital, a new lounge exclusively for female staff, etc.).

Strengthening the support system for education, practice, and research by professional personnel including University Research Administration (URA) members For organizations in the hospital such as the Comprehensive Education Support Center for Community Medicine, the Medical IT Center, Community Medical Cooperation Office, the Medical Science Promotion Committee (Clinical Research, Innovation and Education Center), and the Office for Promotion of Internationalization, we will strengthen the support system utilizing URA members in specialized fields, in collaboration with Administrative Bureau. All of the aforementioned organizations are expected to contribute to the community in the field of education, practice and research or to perform cutting-edge functions within the hospital.

♦ Strengthening of functions of hospital organization

We aim to promote specialization of healthcare professionals and maintain their motivation by improving the environment, both by increasing the number of ancillary medical staff and by introducing incentives. We will establish highly specialized career paths for administrative staff hired exclusively by this hospital. TOHOKU UNIVERSITY

[Edit·Issue] Office of the President Tohoku University 2-1-1, Katahira, Aoba-ku, Sendai 980-8577 JAPAN Tel: +81-22-217-5009

http://www.tohoku.ac.jp/english/

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TOHOKU UNIVERSITY GLOBAL VISION

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Office of the President Tohoku University

2-1-1, Katahira, Aoba-ku, Sendai 980-8577 JAPAN Tel: +81-22-217-5009 http://www.tohoku.ac.jp/english/

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