

# TOHOKU UNIVERSITY VISION 2030

Collaborate. Innovate. Activate.



TOHOKU  
UNIVERSITY

November 2018

Tohoku University

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# 1 President's Introduction



Since its establishment in 1907, Tohoku University has always emphasized the three principles “Research First”, “Open Door” and “Practice Orientation”. Many brilliant students graduated in its 111 years’ history and we are proud to say, that our research achievements had and continue to have a substantial impact on both the academic world as well as the global community. The continued collaborations and innovations are a major reason for our selection as one of the first three Designated National Universities by the Japanese government in June 2017.

Because Tohoku University was founded with the support of private fundings as well as backing by the regional government, our ties to the communities have been very close and we grew together with society. When the Great East Japan Earthquake struck the region of Tohoku in 2011, we dedicated our work to help the recovery of the communities. This experience heartened us in our belief, that we are and have to be a university collaborating with society. That our innovations have to serve global communities. And that these innovations have to be present and active in the ever changing world, leading to a sustainable and prosperous future.

The progressing globalization as well as the effects of the fourth industrial revolution result in rapid socioeconomic changes, impacting communities both abroad and at home. Simultaneously, poverty, hunger and environmental issues in certain regions of the world are becoming an increasing concern for the sustainable future of society. For exactly this reason, and to assure the prosperity of coming generations, it is the duty of academia to provide not only solutions to these urgent problems, but also a create and share new social value and design a path for others to follow. A vision that will encompass the activities of our university and the future of the communities we live in.

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We created the Tohoku University Vision 2030 as a roadmap for the activities of our university until 2030. It clarifies our goals, challenges and aspirations. Projects in education and research will be redesigned and promoted in collaboration with communities and global institutions. This collaboration will lead to new innovative ideas, giving further insight into scientific matter and academic knowledge. These ideas and innovations on their own however, have no immediate benefit to the people, unless they are implemented and activated in society. Once activated, they will provide improvements and will enhance the quality of life within the communities. In return, supporting local and global communities will lead to new opportunities for further collaborations, giving incentives to Tohoku University members to further redesign and promote existing collaborations to the next level.

It will be a virtuous cycle to collaborate, innovate and activate.

However, our endeavor will only be possible with the united understanding and support of our collaborators in the communities, innovators in research and activators in both industry and institutions. It is a vision, that will not be successful without your help. So we humbly ask for your continued assistance and cooperation.

Let us together forge a path for our future.

Hideo Ohno  
President, Tohoku University  
November 2018

## 2 Background

### ▶ Times of Global Change

Currently, there are two important aspects affecting everyday life in the communities as well as future prospects.

On one hand, there is the rapid, steadfast advancement of globalization and digitalization. Technical progress that makes it possible to do and achieve things that would not have been possible for past generations. A digital revolution is embedding technology in our society and merging the physical and digital world. Breakthroughs in mass production, Information and Communication Technology (IoT), Big Data or Artificial Intelligence (AI) are leading the way to what has been entitled Society 5.0, a fusion of the virtual and real world, providing new solutions to socio-economic issues. On the other hand, there are increasing concerns regarding the preservation of local cultures and traditions affected by the subsequent introduction of new technologies as well as serious objections to the ongoing lavish behavior of humankind.

In times of rapid change on a global scale, the focus should not be to hoard resources or materials, but to gather and share knowledge and wisdom in order to deal with increasingly multifaceted global issues. The establishment of a Knowledge-based Society will be essential for the sustainable future on a global scale and it is the responsibility of academia to provide both specialized personnel as well as the necessary wisdom.

### ▶ Issues and Objectives

In 2015, the United Nations established the Sustainable Development Goals (SDGs), consisting of 17 overarching goals and 169 targets to be achieved by 2030. They are the blueprint to achieve a more sustainable future for all and address the global challenges, including poverty, inequality, climate, environmental degradation, peace and justice.

Additionally, although a high life expectancy is most certainly desirable, healthy life years become more and more important as Japan is a country with one of the highest proportions of elderly citizens. The demographic changes will inevitably lead to economic and social issues in the future, making early responses crucial for the continuance of the community. Furthermore, Japan is faced with frequent natural disasters, leading to serious environmental and socio-economic issues. It is the task of the academic world to not only avert future disaster risks and find solutions to these existing issues, but also foster and nurture the future generation of global leaders, who will have to fight upcoming, unknown challenges as well.

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## ► Universities in Uncertain Times

As there are an increasing number of global issues confronting society, as the future seems more uncertain than ever, the role of universities and academic institutions has become more important than ever. Utilizing wisdom and creating new value. Helping communities and leading innovative change for a better, more sustainable future is a task involving meticulous scientific research as well as transparent communication and provision of public goods. But it is also a task, that cannot be approach alone. Collaborations with community members as well as the education and care for the next generation of academic sophisticates are crucial to ensure the Knowledge-based Society we are striving for.

## 3 Overview

The Tohoku University Vision 2030 was created as a roadmap for our university's activities. It is both a challenge and a mission of our academic community toward a sustainable future. Based on our traditional principles and our identity we established over the years, we will continue to improve the organizational structure in order to advance the virtuous cycle of collaboration in education and research, innovation utilizing our scientific achievements and the activation of these accomplishments within the global communities. It is a quest we embark on to forge a path for a better future for all until 2030.

### ▶ Tohoku University's Mission and Academic Ideals

- **Tohoku University's Mission:** In its tradition over more than 100 years, Tohoku University has been a comprehensive university with the three principles "Research First", "Open Door" and "Practice Orientation". During this time, many brilliant students and researchers have been part of our academic family and accomplished extraordinary tasks. And we have contributed to both the scientific community through excellence in research and the general public through progressive innovations. We will continue our commitment to serve society through academic excellence.
- **From Tradition to Leadership:** The progressing globalization as well as the rapid advancements of science and technology have created times of rapid change. Tohoku University must not be excluded from this present movement and just rely on its tradition. We have the duty as comprehensive university with high capabilities in education and research to forge a path and lead the way toward a new and progressive era, challenging the unknown for a better future.
- **Community Collaboration:** Since its establishment, Tohoku University has strong private-public ties and received intensive support by local communities. We grew and evolved with the people of the region and endured hardship together. The experience of the Great East Japan Earthquake in 2011 was an event, that even further tightened our connection to the community and heartened us in our belief, that we are and have to be a university collaborating with society.

### ▶ Main Aspects of the Tohoku University Vision 2030

- **Concept:** Based on Tohoku University's strengths and unique capabilities, we established a long-term plan of action and clarified priority projects as well as precise objectives to be accomplished by 2030. The vision is related to the global socio-economic and environmental situation and considers not only the scientific community but the whole of our society, providing a roadmap for others to follow.

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- **Aspects:** The Tohoku University Vision 2030 consists of four main components. “Vision 1 – Education”, advancing the education and development of next generation of leaders and innovators with a global perspective, “Vision 2 – Research”, aspiring the creation of new knowledge and wisdom through excellence in academic studies, “Vision 3 – Community Co-Creation”, pursuing the collaboration with industry and communities both at home and abroad, and “Vision 4 – Governance Reforms”, providing a platform for the efficient promotion of the virtuous cycle created by our members.
  - **Toward the Future:** Since the selection as Designated National University in June 2017, Tohoku University has introduced the first steps for major reforms leading to a transformation of the university. We will continue our efforts as leading university to support and assist global communities on their path toward the future.

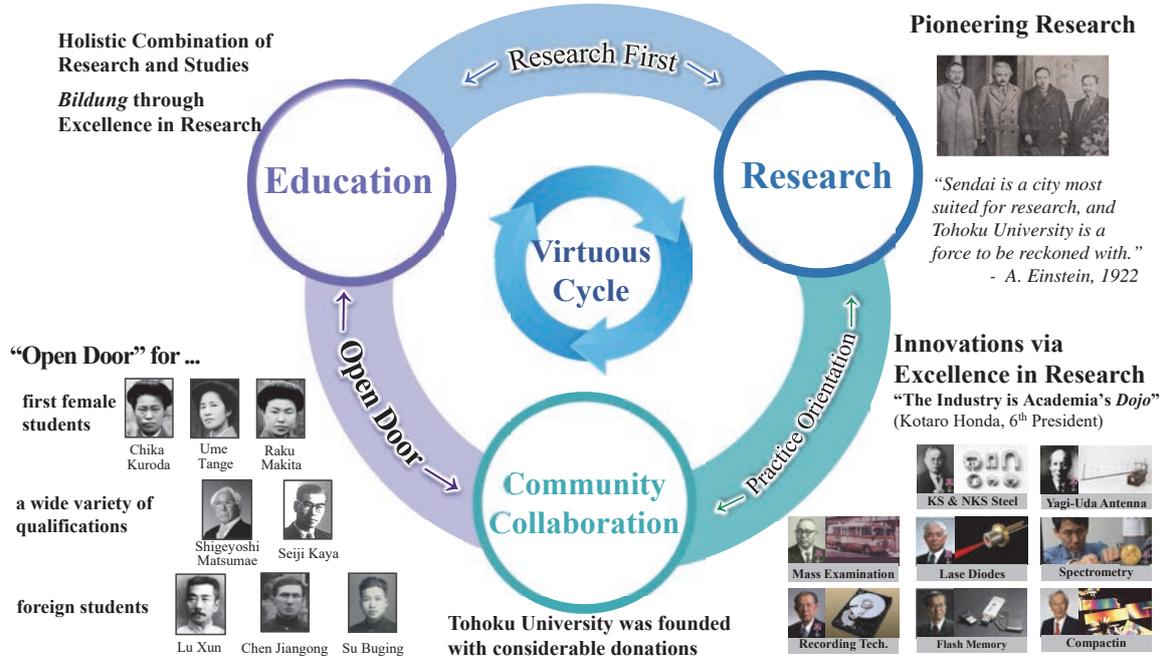


# Tohoku University ~ History & Character

## Involved in the Community

### A Virtuous Cycle of Education, Research and Collaboration

Based on “Research First”, “Open Door” and “Practice Orientation”



# Tohoku University Vision 2030

## Collaborate. Innovate. Activate.



4 Visions	19 Priority Strategies	66 Main Policies
<p><b>1. Education</b> Fostering creative talent and future leaders - The global perspective in times of rapid change</p>	<p><b>Priority Strategy ①</b> Times of Rapid Change ~ Education of Creative Students</p>	<ol style="list-style-type: none"> <li>1. Forging a new education framework toward the future</li> <li>2. Crossing boundaries &amp; educating creative, energetic and highly specialized experts</li> <li>3. Promotion of advanced ICT education including personalized learning</li> <li>4. New evidence based admission policies</li> <li>5. Community contributions and extracurricular activities for character building and experience gaining</li> </ol>
	<p><b>Priority Strategy ②</b> Universities as Members of the Community ~ New Education Programs</p>	<ol style="list-style-type: none"> <li>6. Promotion of industry-collaboration-based education</li> <li>7. Lifelong learning and new recurrent education</li> </ol>
	<p><b>Priority Strategy ③</b> International Co-Education ~ The On-Campus Global Environment</p>	<ol style="list-style-type: none"> <li>8. Cutting-edge international programs to attract students from all over the world</li> <li>9. Promoting international co-education on an open and borderless campus</li> <li>10. Advancing global education projects</li> </ol>
	<p><b>Priority Strategy ④</b> Student Support ~ Inclusion and Serenity toward Future Careers</p>	<ol style="list-style-type: none"> <li>11. Providing an inclusive environment for diverse students</li> <li>12. Enhancing financial support and career guidance</li> </ol>
<p><b>2. Research</b> Creating innovations and pioneering in new academic fields - Academic excellence as a top-thirty leading university</p>	<p><b>Priority Strategy ⑤</b> Creating New Value ~ Challenging the Future</p>	<ol style="list-style-type: none"> <li>13. New interdisciplinary research fields and fundamental research</li> <li>14. Promoting leading research activities of the Core Research Cluster</li> <li>15. Leading frontier research in the academic world</li> <li>16. Solving societal issues for a sustainable and prosperous future</li> </ol>
	<p><b>Priority Strategy ⑥</b> Research Structure Reforms ~ Toward a Leading University</p>	<ol style="list-style-type: none"> <li>17. Installment of a three-layered “Research Innovation System” under the Organization for Advanced Studies to strategically advance cross-sectoral, interdisciplinary research projects</li> <li>18. Strategic research collaborations utilizing large-scaled research facilities</li> <li>19. Reinforcing university capabilities as a policy institute, recommending policies and societal change for the communities</li> <li>20. Creating an international hub for humanities research and global communication of cultural resources</li> </ol>
	<p><b>Priority Strategy ⑦</b> Attracting Young Talent ~ Supporting &amp; Fostering the Next Generation</p>	<ol style="list-style-type: none"> <li>21. Attracting brilliant young researchers from all over the world</li> </ol>
	<p><b>Priority Strategy ⑧</b> Pursuing Academic Excellence ~ Maintaining a Flourishing Environment</p>	<ol style="list-style-type: none"> <li>22. Maintaining an open research environment via diversification</li> <li>23. Promoting brain-circulation via strategic utilization of sabbaticals</li> <li>24. Promoting administrative support to improve diverse research projects</li> </ol>

4 Visions	19 Priority Strategies	66 Main Policies
<p><b>3. Community Co-Creation</b> As a member of the community, it is the duty of a university to establish partnerships with diverse sectors, create new societal value and lead innovations toward the future.</p> <p><b>3 – 1. Industry Co-Creation</b></p>	<p><b>Priority Strategy ⑨</b> Strategic Industry Co-Creation ~ Tohoku University's Way to Future Developments</p> <p><b>Priority Strategy ⑩</b> Next Generation Entrepreneurs &amp; Venture Capitals</p> <p><b>Priority Strategy ⑪</b> Supporting Strategic Industry Co-Creation ~ Structural Reinforcements</p>	<p>25. Development of strategic industry co-creation ①: Accelerating large-scaled industry collaborations via Organization-to-Organization partnerships</p> <p>26. Development of strategic industry co-creation ②: Strategic development of open innovations at Tohoku University</p> <p>27. Development of strategic industry co-creation ③: Innovative creations of science and technology utilizing the Next Generation Synchrotron Radiation Facility</p> <p>28. Development of strategic industry co-creation ④: Global industry co-creation</p> <p>29. Development of strategic industry co-creation ⑤: Acceleration of regional innovations</p> <p>30. Accelerating the creation of Tohoku University venture capitals</p> <p>31. Global entrepreneur education &amp; support</p> <p>32. Strategic reinforcements based on industry co-creation policies</p> <p>33. Establishing an Under-One-Roof Industry Collaboration Hub (Cooperative Research Square)</p> <p>34. Reinforcing management of intellectual properties</p> <p>35. Creating strategic industry collaboration funds</p> <p>36. Establishing a new, unbounded innovation creation system</p>
<p><b>3. Community Co-Creation</b></p> <p><b>3 – 2. Community Collaboration</b></p>	<p><b>Priority Strategy ⑫</b> Universities as Members of the Community ~ Increasing Community Collaborations</p> <p><b>Priority Strategy ⑬</b> Diversity &amp; Inclusiveness ~ Our Principle of "Open Door"</p> <p><b>Priority Strategy ⑭</b> From Disaster Recovery to Sustainability ~ Advanced Problem-Driven Research</p>	<p>37. Advanced community collaborations in a knowledge-based society via the Tohoku University Open College</p> <p>38. Promoting an open platform for regional and global exchange of wisdom</p> <p>39. Creating a lively Tohoku University community utilizing alumni networks</p> <p>40. Reinforcing strategic public relations</p> <p>41. Equal opportunities and mutual respect</p> <p>42. Steady progress of Tohoku University's Reconstruction Actions and projects at the Institute for Disaster Reconstruction and Regeneration Research</p> <p>43. Contributing to disaster stricken communities with widespread collaborations and cooperation</p> <p>44. Communicating outcomes of the reconstruction process</p> <p>45. Problem-driven research projects (Research with Social Impact) for a sustainable future</p>
<p><b>4. Governance Reforms</b> Governance Reforms for a virtuous cycle found on excellence in education and research</p>	<p><b>Priority Strategy ⑮</b> Agile Governance ~ Social Trust &amp; Value via Adaptive Responses</p> <p><b>Priority Strategy ⑯</b> A Strong Financial Foundation ~ Assuring Continued Operations</p>	<p>46. Reforms for diverse and flexible personnel management</p> <p>47. Governance reforms to reinforce university management</p> <p>48. Introducing new utilities and optimizing the work flow</p> <p>49. Diverse ways to work &amp; flexible work load management</p> <p>50. Prioritizing risk management and compliance</p> <p>51. Improving cyber security and optimizing the ICT environment</p> <p>52. Advanced budget distribution system for increased performance</p> <p>53. Utilization of university resources</p> <p>54. Enhancing the supporters network and strategic fund raising</p> <p>55. Increasing private joint research funds via strategic industry collaboration</p>

4 Visions	19 Priority Strategies	66 Main Policies
<b>4. Governance Reforms</b>	<b>Priority Strategy ⑰</b> International Collaboration ~ Strategic Partnerships for further Excellence	56. Strategic advancement of international collaborations 57. University-wide, cross-sectoral globalization on campus
	<b>Priority Strategy ⑱</b> Diverse Values on Campus ~ Open Exchange with International Communities	58. Accelerating community collaborations utilizing one of Japan's largest Science Park 59. Maintaining an advanced environment on campus, respecting diversity and promoting inclusion 60. Creating an attractive Academic Park on campus 61. Advanced constructions and progressive facility maintenance
	<b>Priority Strategy ⑲</b> Next Generation Medicine & Life Science ~ Reinforcing Hospital Functionality	62. Creating new medical innovations utilizing IoT, AI and Big Data in Life Science as well as promoting strategic industry collaborations 63. Reinforcing functionalities of the University Hospital as global hub for Next Generation Medicine 64. Providing cutting-edge medical care and a solid management foundation 65. A safe, serene and convenient hospital environment for patients 66. Deploying an advanced HR management strategy for advancing medical care to respond to changing needs of the community

## 4 4 Visions, 19 Priority Strategies, 66 Main Policies



### Education

Fostering creative talent and future leaders

- The global perspective in times of rapid change

#### The University in the Year 2030

As global citizens of the 21st century (and pioneers challenging future ideas), we will proactively interact with different cultures and diverse values, seek deeper wisdom for cutting-edge knowledge and foster future leaders for upcoming times.

#### Priority Strategy ①

### Times of Rapid Change

~ Education of Creative Students

#### Main Policies

#### 1. Forging a new education framework toward the future

We will revise and renew various aspects of undergraduate education, including the curriculum structure and teaching methods, in order to prepare students for the future society. Practical orientation within the education program (e.g. fostering global leaders, sophisticated knowledge regarding AI, mathematics and data science as well as entrepreneurship education) and cross-disciplinary, flexible learning will be a central aspect of the new, diverse curriculum.

#### 2. Crossing boundaries & educating creative, energetic and highly specialized experts

We will establish the “Tohoku University Advanced Graduate School” which will provide high specialization as well as cross-disciplinary knowledge. Interdisciplinary studies, international collaborations and industry cooperation are the fundamental principles for the new degree programs. Furthermore, the curricula will be extended to cultivate a deeper scientific understanding and provide transferable skills for our students. Realizing the social framework and practical aspects of studies as well as the importance of sustainability at an early stage will be crucial to future education programs.

### 3. Promotion of advanced ICT education including personalized learning

Constantly advancing Information and Communication Technology (ICT) and its utilities have to be included and applied in a modern education environment. The innovation of our teaching facilities are therefore a necessary objective to assure appropriate education to provide future needs. In particular, we will introduce personalized learning methods optimized to fit the characteristics and skills of individual students.

### 4. New evidence based admission policies

In order to attract international talent from all over the world, we will reinforce the functionality of our Admission Center and reshape admission policies. In particular, we will further diversify the evidence based admission strategy and augment the recommendation-based Admission Office Entrance Examination to captivate and enroll motivated, talented students. Furthermore, we will also reinforce the public relations and information distribution toward high schools regarding admission, to ease the step towards university studies.

### 5. Community contributions and extracurricular activities for character building and experience gaining

We encourage students to challenge themselves and we will provide guidance for extra curricula activities based on students' initiatives. Participating in sports, cultural or community projects will provide opportunities to gather experience beyond regular university life and give students the chance to evolve new skills as well as discover unknown aspects of themselves. Extracurricular pursuits will also include volunteer activities at disaster stricken communities, where students have the time to connect to local communities and contribute to the social environment of the Tohoku region.

**Priority Strategy ②****Universities as Members of the Community****~ New Education Programs****Main Policies****6. Promotion of industry-collaboration-based education**

Solving societal issues and laying the foundation for a prosperous future as well as private-public collaborations through and for the creation and succession of knowledge will be increasingly important aspects of university activities. We will establish the Graduate School Program for Industry Co-Creation and advance entrepreneurship education combined with our excellent research outcomes to achieve new ways and methods to meet societal needs. In particular, Project-Based-Learning, internships for students as well as close ties and exchange programs with the industry and communities will enhance the cooperative education and contribute to future partnerships.

**7. Lifelong learning and new recurrent education**

In order to establish a system to support lifelong learning for engaged community members regardless of age and restrictions, we will develop recurrent education programs which will provide new and enhanced skills as well as highly specialized knowledge and techniques for participants. We will utilize activities of the new Extension Center and expand the current education programs to include lectures and certificate curricula for lifelong learning courses.

## International Co-Education

### ~ The On-Campus Global Environment

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#### Main Policies

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#### 8. Cutting-edge international programs to attract students from all over the world

We will continue the development of our International Degree Courses and promote standardized international Bachelor, Master and Ph.D. courses at all faculties. Furthermore, we will reinforce our support programs for international students and provide a global environment on campus to attract and captivate talented students from all over the world.

#### 9. Promoting international co-education on an open and borderless campus

We will promote global learning and research activities to advance university-wide international exchange and implement a system to adequately evaluate overseas activities. Furthermore, the University House - one of Japan's largest cross-cultural student dormitories - will provide an on-campus global environment and education programs to our students. Newly developed online courses in collaboration with overseas universities for international co-education will also give students the opportunity to experience foreign cultures while being on campus and cultivate a global perspective.

#### 10. Advancing global education projects

We will establish and develop new education programs such as the International Joint Graduate Programs in close collaboration with leading overseas universities, in order to renovate the traditional education system. At first, we will focus on Tohoku University's strong fields, research areas where we have outstanding achievements and topics related to urgent societal and environmental issues and subsequently expand successful concepts to other areas.

**Priority Strategy ④****Student Support****~ Inclusion and Serenity toward Future Careers****Main Policies****11. Providing an inclusive environment for diverse students**

We believe that diversity is a strength, and work hard to cultivate an inclusive culture on campus that supports people of different ethnicity, religion, gender and sexual orientation. The university has also widened some of our pavements for better wheelchair access and upgraded many of our facilities to make it easier for staff and students with physical disabilities. The mental health of our students is also a fact not to be underestimated. We will continue to enforce a strict anti-harassment policy and further establish measures to provide a safe and serene environment for everybody on campus.

**12. Enhancing financial support and career guidance**

Keeping the evolving societal structures and changing professions in mind, we will implement an advanced career education to give students the opportunity to succeed on the global stage. Furthermore, the enhanced career support within the degree programs at the Advanced Graduate School will provide various means for all students to improve their career options. The Innovative Leaders Platform for Ph.D. students or job mediation events for international students are just two examples of our activities. Additionally, we will also expand financial support for Ph.D. students by introducing a new grant-type scholarship.



## Research

Creating innovations and pioneering in new academic fields  
- Academic excellence as leading university

### The University in the Year 2030

Our pursuit of deeper academic wisdom and scientific knowledge will continue based on the university's principle "Research First". The creative hub of knowledge, which will be established, will not only attract young talent from all over the world, but also present top-level research capabilities, forging new pioneering ideas for the future.

### Priority Strategy ⑤

## Creating New Value

~ Challenging the Future

#### Main Policies

### 13. New interdisciplinary research fields and fundamental research

We strongly encourage the advances of fundamental research through the unrestrained, free ideas of each and every individual researcher and the diverse academic activities of our faculty members. The interdisciplinary exchange beyond the borders of singular academic fields generates a dynamic development of new scientific achievements and will establish new research frontiers, leading global research.

### 14. Promoting leading research activities of the Core Research Cluster

Tohoku University has an outstanding record and a long list of achievements in the scientific fields of Materials Science and Spintronics. Studies, that combine science and engineering as well as fundamental and applied research, leading to new commercialized products and visible improvements to the everyday life in the communities. Furthermore, due to the Great East Japan Earthquake in 2011, we are pioneers in Next Generation Medicine and Disaster Science, giving communities both at home and abroad the necessary tools and knowledge to fight illnesses and natural disasters. We will continue our endeavors by steadily improving our Core Research Cluster of these four research areas and present the outcomes to the general public.

## 15. Leading frontier research in the academic world

We will strategically reinforce research areas of Tohoku University with top-level potentials and leading research achievements. At first, Cosmic Physics, Earth & Environmental Sciences, Life Science, Data Science, Machine Science and Japan Studies will be subject of strategic support for increased global presence. This International Research Cluster will be expanded upon requirement and advance cross-sectoral interdisciplinary research.

## 16. Solving societal issues for a sustainable and prosperous future

Advancing problem-driven research projects such as Research with Social Impact, utilizing the combined efforts of Tohoku University, will not only lead to new innovations and scientific results, but also provide solutions to societal and economic issues, leading to a sustainable and prosperous future for everybody. The research outcomes of our own projects will also constitute a proactive contribution to the Sustainable Development Goals (SDGs) adopted by the United Nations, representing a world-wide collaboration with all global community members.

### Priority Strategy ⑥

## Research Structure Reforms

### ~ Toward a Leading University

#### Main Policies

## 17. Installment of a three-layered “Research Innovation System” under the Organization for Advanced Studies to strategically advance cross-sectoral, interdisciplinary research projects

The research structure will consist of three layers, each given a clear mission, thus establishing a “Research Innovation System”, where a flexible reorganization of research units is made possible by swift response to priorities and evaluation of individual achievements. In particular, the Organization for Advanced Studies, the associated research institutes as well as the research centers will be the entities driving the reinforcement of research capabilities. The reforms will be based on Tohoku University’s achievements in order to create and establish research frontiers for further outstanding achievements in these new, emerging areas.

## 18. Strategic research collaborations utilizing large-scaled research facilities

Seeing the establishment of the Next Generation Synchrotron Facility as an opportunity, we will promote strategic collaborations with external research institutes such as the National Research and Development Agency. Furthermore, in order to increase our global presence in the strong research fields of Tohoku University as well as reinforce our research capabilities, we will establish strategic partnerships through cross-appointments, joint utilization of research facilities as well as promoting joint research at our institutes and centers.

## 19. Reinforcing university capabilities as a policy institute, recommending policies and societal change for the communities

Combining the academic knowledge of social and natural sciences, we aim to reinforce university capabilities as a policy institute (think tank), recommending necessary changes and societal implementations to the national and local governments as well as the industry to establish a multifaceted collaboration for our common, sustainable future.

## 20. Creating an international hub for humanities research and global communication of cultural resources

We will make the vast and rare cultural resources accumulated at Tohoku University's institutes accessible to the general public, thus providing a system that can be utilized for the advancement of open science and reinforcing capabilities as international hub for humanities research.

### Priority Strategy ⑦

## Attracting Young Talent

### ~ Supporting & Fostering the Next Generation

#### Main Policies

## 21. Attracting brilliant young researchers from all over the world

In order to establish a research hub where young researchers can flourish, we will establish a wide variety of research sections within the Organization for Advanced Studies. These Sections will provide an environment for specialized research activities and will host a basis of 200 talented young international researchers on a regular basis. These researchers affiliated with the Organization for Advanced Research will also have the opportunity to collaborate with the world's top-level researchers at the "Tohoku

Forum for Creativity”. In connection with the appointments of the Organization for Advanced Studies, we will also expand the tenure track system that guarantees fair competition among applicants, creating an attractive environment for young people. We will also introduce the new “Young Distinguished Professor” (tentative) system to provide an incentive for attractive research activities.

## Priority Strategy ⑧

### Pursuing Academic Excellence

#### ~ Maintaining a Flourishing Environment

##### Main Policies

#### 22. Maintaining an open research environment via diversification

We will further diversify our research environment in order to maintain an unconstrained climate where ideas can emerge freely to establish new academic frontiers. To this end, we will not only advance the assignment of female and foreign researchers, but also reform the employment system to provide adequate work-life-balance for improved motivation and vitality within the university.

#### 23. Promoting brain-circulation via strategic utilization of sabbaticals

We will promote international brain-circulation by implementing a renewed work environment, where every faculty member can take a sabbatical linked with collaborative exchange both in Japan and overseas. Furthermore, utilizing the Organization for Advanced Studies and associated institutes, we will establish an on-campus sabbatical, where faculty members can spend their undivided attention to research projects and communicate with other members, resulting in on-campus brain-circulation.

#### 24. Promoting administrative support to improve diverse research projects

We will enhance research support organizations such as University Research Administration or Technical Support Centers in order to swiftly comply to the needs of faculty members and new, emerging research projects, thus strengthening the cooperation within the university. Furthermore, we will review the current work load of faculty and professional staff to remove unnecessary work and increase efficiency, procuring more time for important tasks directly connected to the performance of the university.



## Community Co-Creation

As a member of the community, it is the duty of a university to establish partnerships with diverse sectors, create new societal value and lead innovations toward the future.

### The University in the Year 2030

The creation, utilization and succession of knowledge and wisdom is the fundament of a knowledge-based society and essential for future developments. Based on this academic knowledge we will lead the creation of social value as well as the changes and innovations for a sustainable and prosperous future.

## Industry Co-Creation

### Priority Strategy ⑨

### Strategic Industry Co-Creation

~ Tohoku University's Way to Future Developments

#### Main Policies

#### 25. Development of strategic industry co-creation ① : Accelerating large-scaled industry collaborations via Organization-to-Organization partnerships

In order to maintain a strategic partnership, it is necessary for both the industry and academia to share the vision of the new social value to be created. Based on this "Vision Co-Creation Partnership" we will set up full-fledged joint research projects and reinforce related actions for an efficient progress. We will consolidate all university knowledge to approach important societal issues and establish a virtuous cycle based on the strategic Organization-to-Organization commitment with the industry.

#### 26. Development of strategic industry co-creation ② : Strategic development of open innovations at Tohoku University

As a second approach to industry co-creation, we will utilize the successful B-U-B (Business-University-Business) collaboration model (the university as a platform for an innovation ecosystem with participation of multiple companies) employed by the Center for Innovative Integrated Electronic Systems (CIES) to establish large-scaled open innovations in the research fields of Materials Science and Next Generation Medicine.

Furthermore, we will assure the autonomy of the organizations promoting open innovations by providing adequate regulations and support.

### 27. Development of strategic industry co-creation ③ : Innovative creations of science and technology utilizing the Next Generation Synchrotron Radiation Facility

We will create a large-scale research complex (Science Park) together with the Next Generation Synchrotron Radiation Facility at the new extension of the Aobayama campus, where globally competitive corporations can gather to participate in leading research on innovations in science and technology.

### 28. Development of strategic industry co-creation ④ : Global industry co-creation

We will promote collaborations with overseas companies based on the successful model of CIES and the outstanding track record of Tohoku University regarding joint research projects with the foreign private sector. Furthermore, considering the global economy, we will develop a new international industry collaboration project through overseas branches.

### 29. Development of strategic industry co-creation ⑤ : Acceleration of regional innovations

We are providing innovative ways to support the training and education of human resources in the Tohoku region such as the Regional Innovation Producer School as well as the Regional Innovation Advisor School. Utilizing cutting-edge research facilities of the university or the Science Park for further regional development, we will reinforce our collaboration with the local communities and regional economy in order to actively support regional corporations as well as the creation of new venture capitals.

## Priority Strategy ⑩

### Next Generation Entrepreneurs & Venture Capitals

#### Main Policies

### 30. Accelerating the creation of Tohoku University venture capitals

In order to discover and support ideas for new businesses, we will proactively utilize the Tohoku University Gap Fund and accelerate the creation of new venture capitals and management of innovative intellectual properties. Together with Tohoku University

Venture Partners Co., Ltd. (a 100% Tohoku University funded company) and further external investment institutions, we will expand the investment pipeline to increase the number of Tohoku University ventures to 100 companies by 2030. This is also part of the activities as university accredited by MEXT's Private-Public Innovation Program.

### 31. Global entrepreneur education & support

We will advance the Tohoku University Start-Up Garage and create an open environment for diverse entrepreneurship education in collaboration with other venture capitals, accelerators, government institutions and local communities, to provide necessary knowledge for motivated students, researchers and people from the general public. Furthermore, based on strategic collaborations with leading overseas universities, we will assure entrepreneurship education ready for future times through projects such as the "Global Entrepreneurship Challenge".

## Priority Strategy ⑪

### Supporting Strategic Industry Co-Creation

#### ~ Structural Reinforcements

#### Main Policies

### 32. Strategic reinforcements based on industry co-creation policies

In recent years, societal and economical structures have changed rapidly on a global scale. And while the need for new innovations has rapidly increased, it is our duty to provide adequate policies for our mission, vision, way and values to assure long-term development of industry co-creational goals. Furthermore, based on the university principle of "Practical Orientation", we will enhance our partnerships with the industry, analyze best practices and employ strategic structural reinforcements to continue full-fledged collaborations and industry co-creation projects.

### 33. Establishing an Under-One-Roof Industry Collaboration Hub (Cooperative Research Square)

In order to establish a university organization for strategic industry co-creation with all necessary functions, we will create a large-scale Under-One-Roof Industry Collaboration Hub at the new extension of the Aobayama campus, consolidating various on-campus activities and functionalities for industry cooperation currently scattered over several campuses. Furthermore, the Seiryō Campus will serve as a platform for an open

innovation hub in life science research, combining and consolidating all essential activities currently located on remote campuses and satellite laboratories, constituting the Under-One-Roof Hub for Life Science Innovations.

### 34. Reinforcing management of intellectual properties

We will review the procedure regarding intellectual property rights and reinforce necessary functionalities. Establishing an organized flow starting from the creation of an intellectual property to its commercialization, we will consolidate the management of intellectual properties (IPs) in order to increase efficiency and reduce unnecessary work load. Furthermore, in addition to supporting the creation of multifaceted, valuable IPs, such as outstanding research achievements in technology, we will also conduct consultations to increase practical implementations of research outcomes. This will increase license income as well as connect academia to the communities, thus improving quality of life for everybody.

### 35. Creating strategic industry collaboration funds

We will expand strategic industry collaboration funds by allowing hour-rate payment of personnel expenses regarding joint research contracts and reviewing the overhead ratio of external funding. Additionally, we will diversify our income by utilizing existing licenses and research facility fees as well as deregulating the management stock and acquisition rights.

### 36. Establishing a new, unbounded innovation creation system

It is of the essence for future innovations to establish a scheme, where new findings in research are seamlessly implemented and integrated in communities, directly connecting fundamental research with the people in need of these improvements. In order to establish such a system, we need to increase the number of industry collaboration liaisons, who regularly support researchers at their work, and swiftly connect outcomes of joint research projects with production measures of the industry. Furthermore, utilizing the outstanding knowledge and experience of our university, we will develop R&D consulting services for the industry. We will also enhance the functionality of the satellite office in Tokyo, in order to enable strategic and versatile communication as well as public relations with private companies and national projects.

# Community Collaboration

## Priority Strategy ⑫

### Universities as Members of the Community

#### ~ Increasing Community Collaborations

##### Main Policies

#### 37. Advanced community collaborations in a knowledge-based society via the Tohoku University Open College

In order to provide opportunities for lifelong learning, we will establish the Tohoku University Open College. It will be a place for all community members who are interested and motivated to participate in academic activities, gain new knowledge or acquire additional skills. In addition to programs in culture, art or cutting edge science, courses informing on disaster risk reduction as well as addressing community issues and possible solutions will strengthen the ties with the region. This will lead to an advanced form of collaboration within the knowledge-based society.

#### 38. Promoting an open platform for regional and global exchange of wisdom

By increasing cultural and communicative activities through e.g. the development of outreach programs, concerts at the Tohoku University Centennial Hall (Kawauchi Hagi Hall) or exhibitions at the library as well as actively promoting university life at campus tours, we will create an open platform for cultural and scientific exchange.

#### 39. Creating a lively Tohoku University community utilizing alumni networks

We will increase public relations with graduates as well as their friends and families through communication of university projects and events. Giving members of the university network prioritized access to information about recent developments will not only attract more interest but also advance transparency as well as integrate these former students into the university life as friends and family. Furthermore, the Shuyukai Alumni Network and other associate organizations will be utilized to strengthen ties to the communities and promote opportunities for mutual support.

#### 40. Reinforcing strategic public relations

In order to gain increased international recognition as well as transparency toward stakeholders, we will reinforce strategic public relations. The Tohoku University “brand” has a long, esteemed history and we continue our work to increase its value within the

community as much as possible. In particular, university activities in education and research as well as the outcomes and achievements will be communicated not only to university members but also to the global community and the general public, including industry and administrative institutions. The resulting mutual understanding and support will further advance activities on campus, creating an even more beneficial environment for both the university and the involved communities.

## Priority Strategy ⑬

### Diversity & Inclusiveness

#### ~ Our Principle of “Open Door”

##### Main Policies

#### 41. Equal opportunities and mutual respect

As mentioned before, we believe that diversity is a strength, and work hard to cultivate an inclusive culture on campus that supports people of different gender, ethnicity, religion and sexual orientation. Based on the university principle of “Open Door” and the “Tohoku University Guidelines for the Promotion of Equal Opportunities (2013~2023)”, we will continue to maintain an environment where all university members can fully unfold their capabilities. Providing a satisfying work-life balance as well as full support for everyday life is key for the future development of academia.

## Priority Strategy ⑭

### From Disaster Recovery to Sustainability

#### ~ Advanced Problem-Driven Research

##### Main Policies

#### 42. Steady progress of Tohoku University’s Reconstruction Actions and projects at the Institute for Disaster Reconstruction and Regeneration Research

Accumulating the knowledge and capabilities of our university, we will continue our work related to the regeneration and recovery after the Great East Japan Earthquake. The commitment-type projects managed by the Institute for Disaster Reconstruction and Regeneration Research will be restructured based on their progress to assure future

developments. Furthermore, we will introduce “Creative Reconstruction” based on the outcomes of university projects both locally and globally in order to be prepared for future societal issues coming from large-scaled natural disasters.

#### **43. Contributing to disaster stricken communities with widespread collaborations and cooperation**

As comprehensive university situated in the region affected by the Great East Japan Earthquake, we will continue to contribute to the long-term recovery process by collaborating with communities and various industry and government institutes in order to address the needs of the people. Additionally, we will support students and university members who actively participate in voluntary projects.

#### **44. Communicating outcomes of the reconstruction process**

The World Bosai Forum, organized in collaboration with the International Disaster and Risk Conference (IDRC) Davos, provides an excellent platform to communicate both the dangers and issues of disasters as well as possible preventive measures on a global scale. Our experiences and activities, including various research outcomes and achievements, give us means to recommend important proposals for global disaster risk reduction to communities both at home and abroad. Furthermore, we are accumulating necessary data and detailed information at the Global Center for Disaster Statistics, creating an archive for future research, with the aim to decrease disaster risks on a global scale. Also, in order to prevent the knowledge and experience of the Great East Japan Earthquake to dissipate, we are continuously communicating the activities and achievements of the Institute for Disaster Reconstruction and Regeneration Research to the general public. Knowing what to do, when the next disaster strikes will be crucial to communities to prevent and reduce as many risks and damages as possible.

#### **45. Problem-driven research projects (Research with Social Impact) for a sustainable future**

The recovery projects after the Great East Japan Earthquake have increased public engagement and community contributions of our members, leading to the establishment of “Research with Social Impact” in 2015. We will conduct cross-sectoral, interdisciplinary research to address important societal issues to realize a sustainable and prosperous future for all. Furthermore, we combined the “Reconstruction Actions” and “Research with Social Impact”, both umbrella projects for social commitment, and established the “Tohoku University Sustainable Development Goals (TU-SDGs)”. These TU-SDGs are promoted in collaboration with our international partners and contribute directly to the SDGs of the United Nations.



## Governance Reforms

Governance Reforms for a virtuous cycle found on excellence in education and research

### The University in the Year 2030

In order to realize a virtuous cycle of education, research and community collaboration on the highest level, we will increase the transparency of university governance, establishing a cooperative environment for various stakeholders across the globe and university members. We will create a strategic management structure for long-term development and assure a comprehensive framework to achieve our goals.

### Priority Strategy ⑮

## Agile Governance

~ Social Trust & Value via Adaptive Responses

#### Main Policies

### 46. Reforms for diverse and flexible personnel management

We will establish the Council for Strategic Management of Human Resources to swiftly respond to university-wide issues regarding personnel appointments. Also considering opinions from external experts, we will create an advanced strategy and policies for the management of faculty members. Regarding professional staff, we will further diversify our appointment policy to attract capable people who are motivated to support our cause. In addition, the personnel evaluation process will be reviewed for all university members in order to assure fair and appropriate assessment of the performance. Especially for faculty members, we will employ a new incentive system according to the research fields. Furthermore, in order to attract and retain brilliant young researchers, we will enhance the Tohoku University Tenure Track and establish the Young Distinguished Professor system.

The advanced personnel management system will also handle the increasingly important acquisition of highly specialized experts such as University Research Administrators.

#### **47. Governance reforms to reinforce university management**

In order to accelerate the academic governance, we will inaugurate a Provost, who will oversee strategic planning and all related activities. Furthermore, we will conduct thorough reviews of internal structures such as the election process of the president and deans or the structure of the administration bureau.

#### **48. Introducing new utilities and optimizing the work flow**

Optimizing the work flow of the administration bureau not only means a restructuring of the organization but also reviewing regulations and removing unnecessary assignments, creating a more efficient structure. We will also introduce supportive tools for administrative services and management including the utilization of AI and other ICT applications. Simplifying the bureaucratic process by expanding online services and web-based applications will lead to a more efficient and flexible environment. Furthermore, in order to respond to needs, ideas and suggestions from all university members, we will install a “Communication Station” to assure continued improvements through necessary reforms.

#### **49. Diverse ways to work & flexible work load management**

We will revise the welfare system and introduce advanced ways to participate at work. This will include new technologies such as telework as well as flexible hours to optimize the performance of all members. It is also essential to decrease the amount of overtime for professional staff and establish an appropriate administrative structure.

#### **50. Prioritizing risk management and compliance**

As leading university, it is vital to establish advanced risk management and suitable compliance. Guaranteeing suitable research ethics, avoiding misuse of research funds and preventing leakage of technology is crucial for future progress and development of academic projects. The informative content and related materials will be circulated to all university members via the e-learning system to assure proper distribution.

#### **51. Improving cyber security and optimizing the ICT environment**

We will install and implement necessary cyber security measures to assure as a safe and effective ICT environment including modern technology e.g. cloud services. Preventing serious incidents by automated network monitoring as well as regular cyber security updates to all members will assure high ICT literacy. Furthermore, thorough software asset management and proper investments will prevent illegal utilities and license issues.

## Priority Strategy ⑯

### A Strong Financial Foundation

#### ~ Assuring Continued Operations

##### Main Policies

#### 52. Advanced budget distribution system for increased performance

In order to establish a virtuous cycle in university governance, we will enact a long-term financial plan, considering the situation of both the society and economy. Based on this plan and in order to directly connect external funds with the overall performance of the university, we will prioritize the support for important projects and introduce an advanced incentive system, based on the acquisition of external funding. Furthermore, we will establish an advanced budget distribution system to assure necessary support for all university projects including basic research. In addition, we will introduce new measures for self-generated income e.g. asset management or utilization of research facilities.

#### 53. Utilization of university resources

In order to maximize the university's asset value, we will reform university regulations, utilize facilities and other assets as well as increase the number of consultation contracts. In particular, the advanced Asset Management Center will manage the large community space on campus and utilize properties of the university such as the cutting-edge research facilities to increase strategic funds and acquire further self-generated income.

#### 54. Enhancing the supporters network and strategic fund raising

We will expand strategic fund raising focused on our diverse stakeholders through the creation of new social value based on excellence in education and research. Community support and critical acclaim of university activities will result in a virtuous cycle for all participants, creating an advanced environment for future developments. This virtuous cycle will support important university activities and create further social value, resulting in strong ties with university contributors and close relations with the communities involved. In particular, we will enhance the activities of the Shuyukai Alumni Network to organize fund raising occasions such as the Homecoming Day or the Industry-Academia Matching Event, raising a culture of mutual support through endowments.

## 55. Increasing private joint research funds via strategic industry collaboration

We will establish autonomous open innovation hubs for large-scaled joint research projects based on the aforementioned B-U-B collaboration in several research fields such as Materials Science, Life Science and Semiconductor Engineering or Spintronics. We will increase diverse joint research funds utilizing Vision Co-Creation Partnerships and organization-to-organization industry collaborations.

### Priority Strategy ⑰

## International Collaboration

### ~ Strategic Partnerships for further Excellence

#### Main Policies

## 56. Strategic advancement of international collaborations

We will advance and promote strategic partnerships with global universities, academic institutions and the industry as well as communities at home and abroad to increase our global presence as leading university. Based on the various international activities of our members, we will establish an international strategy and further enhance international collaborations.

## 57. University-wide, cross-sectoral globalization on campus

The international projects conducted individually in education, research and industry or community collaboration will be consolidated and united to promote Comprehensive Internationalization Projects. We will raise awareness and improve the skills of our members in order to establish an environment, in which everybody can participate in international activities, thus creating a culture suitable for a top-thirty global university.

## Priority Strategy ⑮

### Diverse Values on Campus

#### ~ Open Exchange with International Communities

##### Main Policies

#### 58. Accelerating community collaborations utilizing one of Japan's largest Science Park

Utilizing the Under-One-Roof Industry Collaboration Hub as well as the Next Generation Synchrotron Facility, we will invite industry collaborations to the Science Park at the new extension of the Aobayama campus in order to establish a large-scale research complex. Furthermore, we will create an Under-One-Roof Hub for Life Science Innovations on the Seiryō campus, inviting pharmaceutical companies and life science industry on campus. These activities will accelerate the creation of innovations in collaboration with communities and the industry.

#### 59. Maintaining an advanced environment on campus, respecting diversity and promoting inclusion

We will maintain an advanced, safe and serene environment on campus, respecting diversity and promoting inclusion. In addition to the construction of the cross-cultural student dormitory and accommodations for visiting researchers, we widened some of our pavements for better wheelchair access and upgraded many of our facilities to make it easier for staff and students with physical disabilities. Furthermore, based on our experience of the Great East Japan Earthquake, we emphasized safety, continuity and stability in emergency situations such as natural disasters when maintaining our campus.

#### 60. Creating an attractive Academic Park on campus

Many university facilities such as the library, the museum or the botanical garden are open to the general public and integrated in the surrounding environment of Sendai city. They are accessible to everybody who is interested in academic culture. Furthermore, we will assure close ties with the community through various collaboration projects as well as the Tohoku University Open College in order to not just be a university located in the city, but included in the everyday life of the community as an Academic Park.

#### 61. Advanced constructions and progressive facility maintenance

We will promote the construction of research complex facilities on the Seiryō and Aobayama campus, utilize the Kawauchi area as convention center and introduce

composite facilities consolidating living quarters as well as office space in order to provide additional space for further community collaborations and industry projects.

## Priority Strategy ⑱

### Next Generation Medicine & Life Science

#### ~ Reinforcing Hospital Functionality

##### Main Policies

#### 62. Creating new medical innovations utilizing IoT, AI and Big Data in Life Science as well as promoting strategic industry collaborations

We will establish full-fledged industry collaborations in life science research through the creation of an open innovation platform with the participation of various corporations and advancing cross-sectoral, interdisciplinary cooperation across all related academic fields. Furthermore, we will create advanced medical innovations by utilizing IoT, AI and Big Data in connected health care projects as well as promoting top-level genome medicine based on our clinical biobank.

#### 63. Reinforcing functionalities of the University Hospital as global hub for Next Generation Medicine

We will reinforce the functionality of the University Hospital as a global hub for academic exchange and brain circulation in order to advance Next Generation Medicine from a global perspective. To that end, we will promote exchange projects with overseas medical research institutes as well as medical and pharmaceutical companies and conduct clinical studies based on international standards.

#### 64. Providing cutting-edge medical care and a solid management foundation

We will provide cutting-edge medical care by continuously improving our facilities as well as assure a solid management through various measures including appropriate determination of hospitalization and surgery fees. Furthermore, we will establish an efficient management system, considering future concepts for regional medical care, necessary numbers of hospital beds and collaborations with other medical institutions. We are also a Core Hospital for Clinical Research and certified by the government to conduct organ transplants as well as cancer genomics, leading medical health care in Japan.

## 65. A safe, serene and convenient hospital environment for patients

In collaboration with other medical institutes and administrative agencies, we will establish a master plan for efficient facility management to realize a university hospital for the community. Expanding volunteer activities within the hospital and environmental maintenance will increase patient service and modern technology such as AI translation will improve admission of foreign patients.

## 66. Deploying an advanced HR management strategy for advancing medical care to respond to changing needs of the community

We will continue to improve specialized education and training for medical interns to not only cultivate the necessary mindset as future doctors but also provide as many opportunities to gain experience as possible. Furthermore, we will assess the performance of the University Hospital by introducing appropriate measures based on activities such as surgery, clinical research outcomes or medical training courses and provide incentives to establish a lively and progressive hospital environment. Additionally, we will implement reforms for work load optimization and promote diversification to create an efficient organization included in the community.

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