Toward UTokyo 3.0: The University of Tokyo in the next 70 years

Makoto Gonokami, President

The First UTokyo Global Advisory Board Meeting,
November 27, 2017
Growing Global Instability (2016)

Challenges are becoming more complex, and society is becoming more unstable in 2017.
Synergy between Excellence and Diversity: Contributing to humanity as a Global Base for Knowledge Collaboration

Shared vision, working together within and beyond the University

Improve management systems
Increase autonomy

Published in 2015

The University of Tokyo: Vision 2020
“UTokyo 3.0”: 140 Years of UTokyo

How will the next 70 years be for Japan and the world? And for our university?

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1877</td>
<td>Establishment of UTokyo</td>
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<tr>
<td>1945</td>
<td>Incorporation of national universities</td>
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<tr>
<td>2004</td>
<td>Next 70 years</td>
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</tbody>
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UTokyo 3.0
Challenges to overcome in UTokyo 3.0

1. Promoting inclusiveness and diversity

2. Strengthening financial basis

3. Improving research environment
1. Promoting inclusiveness and diversity
Inclusive society to overcome many inequalities

- Urban
- Ageing society
- Poverty
- Rural
- Fewer children
- Wealth
Campus Diversity: Students  (as of May 2017)

Proportion of International Students

- International, 11%
- Japanese, 89%

Nationality of International Students

- Asia, 82%
- Europe, 9%
- Central & South America, 2%
- North America, 3%
- Africa, 2%
- Middle & Near East, 1%
- Oceania, 1%
Diversity in Campus: Faculty  (as of May 2017)

Internationalization of Faculty

<table>
<thead>
<tr>
<th>Year</th>
<th>Non-tenured</th>
<th>Tenured</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>69</td>
<td>89</td>
</tr>
<tr>
<td>2017</td>
<td>145</td>
<td>130</td>
</tr>
</tbody>
</table>
Campus Diversity: Faculty and Staff (as of May 2017)

Proportion of International Faculty and Staff

Japanese, 94% (10,063)

International, 6% (608)

Nationality of International Faculty and Staff

Asia, 61%
Europe, 24%
North America, 9%
Central & South America, 1%
Africa, 1%
Middle & Near East, 2%
Oceania, 2%
Digital Revolution and Social Transformation

Need to create a new social and economic system, and talent to develop that system

Average of Internet traffic in Japan

- Downloads: Increased by 50% in a year
- Uploads: Increased by 40% in a year
Paradigm Shift in Industrial and Social Structures

A university-led paradigm shift from financial capital to knowledge, technology, personnel, IT capital

- Labor intensive
- Capital intensive
- Knowledge intensive

Issues caused by capital intensiveness
- Mass production led to mass consumption
- Environmental degradation
- Concentration in cities, widening disparities between urban and rural areas

Knowledge creates value
- Greater productivity and high added value
- Resolve disparity between urban and rural areas
- Inclusion
- A society where everyone can contribute

Japan's strengths (manufacturing, basic science)

Postwar reconstruction

Smart technologies generate high added value in all industries

Primary industry (agriculture, forestry, fisheries)
Secondary industry (manufacturing)
Tertiary industry (services)
Smart Society will be created by Digital Revolution

The rehabilitation support robot helps elderly persons by sensing the user’s intention.

The rehabilitation support robot proposes an efficient rehabilitation plan based on analysis of the patient’s current state of health and big data consisting of vast numbers of prior cases.
STS Forum 2017: University Presidents’ Meeting

- **STS Forum**
  - Purpose:
    1) provide a new mechanism for open and informal discussions
    2) build a human network that would
    3) resolve new types of problems stemming from the application of science and technology

- **University Presidents’ Meeting**
  - Purpose:
    1) share experiences
    2) build relationships
  - Attendees: more than 40 university presidents and vice presidents from 23 different countries

UCL, ANU, ETH Zurich, HKU, UCSD, NUS, Kyoto...
### Required research areas for technology development in a knowledge-intensive society (basic and advanced)

- Research about data science and interface between human and computer systems
- Research should solve: ethical issues, privacy issues, human rights, control of technology (particularly AI), human creativity...

### Developing human resources required to cope with the speedy social transition to the knowledge-intensive society

- Short term: Recurrent Education, Social Responsibility and Ethics
- Long term: Flexibility, Resiliency, Multi-cultural experiences

### Ideas for accelerating the integration of academic disciplines to create an inclusive society

- A strategic budget plan in collaboration with industry and government with a long-term perspective
- Students who have not only a specific disciplinary specialization but also multi-disciplinary experience.

### Ideas for building relationships between universities, society, industry, and government internationally to achieve an inclusive society. Ideas to create a platform for these relationships.

- Promoting recurrent education (e.g. via MOOCs) which should be accessible to all citizens.
2. Strengthening our financial footing
Incorporation of National Universities

- Government grants to universities have been substantially decreased.

![Graph showing government grants to National Universities from 2004 to 2017. The grants decreased from 12,415 hundred million yen in 2004 to 10,970 hundred million yen in 2017.](image-url)
Negative effects of decreased government funding

Non-tenured faculty at UTokyo (under 40 years old)

- This trend weakens UTokyo’s international competitiveness in the long term

Lost 520 tenured posts

Ageing facilities, need renovation
Collaboration with industry

Number of collaborative research projects with industry is top-class in Japan.
But the amount of money financed by industry remains small for most projects.

Number of Private Sector Collaborative Research Projects

<table>
<thead>
<tr>
<th>Year</th>
<th>Projects</th>
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<tbody>
<tr>
<td>2007</td>
<td>5000</td>
</tr>
<tr>
<td>2008</td>
<td>6000</td>
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<tr>
<td>2009</td>
<td>7000</td>
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<td>2014</td>
<td>12000</td>
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<tr>
<td>2015</td>
<td>13000</td>
</tr>
<tr>
<td>2016</td>
<td>14000</td>
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</table>

Value of each Collaborative Research Project


But the amount of money financed by industry remains small for most projects.
New approach to make UTokyo a partner for industry to create new businesses

NEW University-Industry Collaboration

Working to create new businesses that contribute to attaining the SDGs.

Related research areas:
1. Urban Policy and Evaluation
2. Big Data
3. Decarbonization
4. Healthy Ageing Society
5. Regional Revitalization
Designated National University System (2017)

• **Purpose**
  - To promote top-level education and research
  - To create an active environment for innovation

• **Designated national university have more freedom on ...**

- Investment
- Asset Management

- Setting diverse range of salary to attract top-level researchers.
  - Increased management autonomy
  - Better use of assets
To take advantage of UTokyo’s uniqueness

<table>
<thead>
<tr>
<th></th>
<th>UTokyo</th>
<th>UC Berkeley</th>
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</thead>
<tbody>
<tr>
<td>Total Assets</td>
<td>1,408 billion yen</td>
<td>1,071 billion yen</td>
</tr>
<tr>
<td>Noncurrent and Current assets</td>
<td>87% (1,233 billion yen)</td>
<td>Investment 40% (435 billion yen)</td>
</tr>
<tr>
<td></td>
<td>Investment 3% (45 billion yen)</td>
<td>Investment 51% (552 billion yen)</td>
</tr>
<tr>
<td></td>
<td>Other 9% (130 billion)</td>
<td>Other 7% (82 billion)</td>
</tr>
</tbody>
</table>

60% of assets are land!
Our properties across Japan

Land area of UTokyo (326km²)

1

1000 of Japan’s land area

Hokkaido Forest 227km²

54 research institutes across Japan
What is our uniqueness and strength?

Income Structure Comparison with Overseas Universities

- **National University of Singapore**
  - Financial report 2015
  - (248 billion yen)
  - Investment income (fund operation, etc.): 33.3 billion yen (13%)
  - Publishing income: 57.1 billion yen (23%)

- **Cambridge**
  - Annual Report 2015
  - (229 billion yen)
  - Investment income: 31.6 billion yen (14%)
  - Publishing income: 37.2 billion yen (16%)

- **UC Berkeley**
  - (270 billion yen)
  - Student fees, etc.: 76.7 billion yen (28%)

- **UTokyo**
  - (236 billion yen※)
  - Sponsored research, etc.: 48.7 billion yen (21%)

※ Compared with FY2015 total income
In addition, about 18 billion yen of Research Grants from MEXT (KAKENHI) was competitively allocated to UTokyo researchers in 2015.
3. Improving the research environment
Erosion of research time (from questionnaire in 2017)

Are you satisfied with your research environment?

- Satisfied: 378
- Tend to Satisfied: 148
- Neither: 149
- Not Satisfied: 62
- Tend to not-satisfied: 10
- No Answer: 41

What kind of tasks have increased compared to 5 years ago?

- Research: 255
- Education: 233
- Internal jobs: 158
- Management jobs: 107
- Other: 41
- Social contribution: Education: 672
Situation for Young Researchers

Non-tenured faculty at UTokyo
(under 40 years old)

Improvement! (Vision 2020 initiative)

After Completing Master’s Program (2001-2016)

Percentage dropped from 42% to 26%
Towards Utokyo 3.0
The 100-year lifespan

50% of the population born in 2007 in advanced countries is expected to live more than 100 years. Longer life means more opportunities to learn and to take on new challenges.
Enjoy the process of change

UTokyo aims to educate students who can embrace coming changes, who have the courage to reach for new frontiers, who have the capacity to enjoy being in such situations.

The Total Number of Outbound Students

<table>
<thead>
<tr>
<th>Year</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>2012</td>
<td>382</td>
</tr>
<tr>
<td>2013</td>
<td>429</td>
</tr>
<tr>
<td>2014</td>
<td>393</td>
</tr>
<tr>
<td>2015</td>
<td>398</td>
</tr>
<tr>
<td>2016</td>
<td>414</td>
</tr>
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Today’s Discussion Points

1. Promoting inclusiveness and diversity
2. Strengthening our financial footing
3. Improving the research environment