Perspective of Industry-University Collaboration in Japan

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Development of the I-U-G collaboration policy -to the Next Decade-

1st Science & Technology Basic Plan
- 1996: To Promote Tech Transfer from U to I
- 1997
- 2000

2nd S&T Basic Plan
- 2001: To Strengthen the I-U-G Collaboration & IP Management
- 2004: “National University Reform”
- 2005
- 2006: Able to invest to the TLO
- 2007: IP belongs to universities

3rd S&T Basic Plan
- 2008
- 2009: “Innovation 25”

Reform of TLOs & IP HQs of U
Improvement of I-U Collaboration & U’s IP activities

<table>
<thead>
<tr>
<th></th>
<th>H16</th>
<th>H17</th>
<th>H18</th>
<th>H19</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Universities</td>
<td>9,378</td>
<td>11,362</td>
<td>12,405</td>
<td>13,654</td>
</tr>
<tr>
<td>Public Universities</td>
<td>412</td>
<td>493</td>
<td>697</td>
<td>766</td>
</tr>
<tr>
<td>Private Universities</td>
<td>938</td>
<td>1,165</td>
<td>1,655</td>
<td>1,791</td>
</tr>
<tr>
<td>Total</td>
<td>10,728</td>
<td>13,020</td>
<td>14,757</td>
<td>16,211</td>
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H15—H19: 1.8 times (approx.)

<table>
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<tr>
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<th>H17</th>
<th>H18</th>
<th>H19</th>
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</thead>
<tbody>
<tr>
<td>National Universities</td>
<td>7,827</td>
<td>9,008</td>
<td>10,082</td>
<td>10,584</td>
</tr>
<tr>
<td>Public Universities</td>
<td>1,169</td>
<td>1,156</td>
<td>1,187</td>
<td>1,162</td>
</tr>
<tr>
<td>Private Universities</td>
<td>6,240</td>
<td>6,796</td>
<td>6,776</td>
<td>6,779</td>
</tr>
<tr>
<td>Total</td>
<td>15,236</td>
<td>16,960</td>
<td>18,045</td>
<td>18,525</td>
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</table>

H15—H19: 1.3 times (approx.)

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<tr>
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<th>H18</th>
<th>H19</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Universities</td>
<td>4,152</td>
<td>6,255</td>
<td>7,003</td>
<td>7,642</td>
</tr>
<tr>
<td>Public Universities</td>
<td>122</td>
<td>285</td>
<td>369</td>
<td>398</td>
</tr>
<tr>
<td>Private Universities</td>
<td>1,720</td>
<td>1,987</td>
<td>1,718</td>
<td>1,829</td>
</tr>
<tr>
<td>Total</td>
<td>6,584</td>
<td>13,786</td>
<td>15,236</td>
<td>16,960</td>
</tr>
</tbody>
</table>

H15—H19: 4.0 times (approx.)

<table>
<thead>
<tr>
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<th>H17</th>
<th>H18</th>
<th>H19</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Universities</td>
<td>223</td>
<td>932</td>
<td>2,026</td>
<td>3,204</td>
</tr>
<tr>
<td>Public Universities</td>
<td>7</td>
<td>34</td>
<td>37</td>
<td>76</td>
</tr>
<tr>
<td>Private Universities</td>
<td>247</td>
<td>317</td>
<td>809</td>
<td>1,110</td>
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<tr>
<td>Total</td>
<td>477</td>
<td>1,283</td>
<td>2,872</td>
<td>4,390</td>
</tr>
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</table>

H15—H19: 23.7 times (approx.)
**Blue Light-Emitting Diode (Blue LED)**

Prf. Akasaki invented GaN LED

Nagoya University ➔ TOYODA-GOSEI Inc.

Financial & Contractual Support for R&D

JST

￥100B sales
￥5B to JST & Nagoya Univ.

**HQ Tunnel Magneto resistance Device for Ultra high Density HDD**

Osaka University ➔ AIST ➔ Cannon Anelva Inc.

Noise control method

MgO-TMR

(Amass production)

Financial Support for R&D

NEDO

￥300B sales
(Magneto-head for HQ HDD)
### Overview of MEXT’s Programs to strengthen I-U Partnership

<table>
<thead>
<tr>
<th><strong>Program</strong></th>
<th><strong>Funding</strong></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>“The Strategic I-U-G Collaboration Project”</td>
<td>¥ 3B</td>
<td>To promote Int’l activities, U-U alliance, IP development, To dispatch “I-G-U Coordinators”</td>
</tr>
<tr>
<td>“The Technology Transfer Support Center (JST)”</td>
<td>¥ 3B</td>
<td>To support universities for patents acquisition</td>
</tr>
<tr>
<td>JST’s “R&amp;D Program for corporatization” etc.</td>
<td>¥ 20B</td>
<td>To promote I-U Joint Researches for Tech Transfers, And to support Start-up’s R&amp;D, Various menu for optimized Flexible Funding</td>
</tr>
<tr>
<td>“The Innovation Center for Fusion of Advanced Technologies”</td>
<td>¥ 7B</td>
<td>To promote I-U Joint Researches for Basic Research Stage</td>
</tr>
<tr>
<td>“The Knowledge Cluster Initiative” etc.</td>
<td>¥ 12B</td>
<td>To promote regional activities for growing the Tech Cluster</td>
</tr>
</tbody>
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**R&D Funds**

- **Basic Research Grant**
  - Technology Seeds

Universities → R&D Funds → Business activities
“I-G-U collaboration spot”s (from 2009)

◆ To develop “Tech-Innovation eco-system”
◆ MEXT & METI will select 10 global and 20～30 local “I-G-U collaboration spot”s.
◆ Both Ministry implements various measures to promote I-G-U collaboration.

- MEXT
  - Regional Tech-Cluster
  - Improve Universities system
  - JST’s R&D Funds

- METI
  - Enterprises’ Network
  - Improve TLOs’ system
  - Tech Development Funds

I-G-U collaboration spot

Local Government

Universities

Industry

TLO

Ministry of Economy, Trade and Industry

MEXT
For Solving Global Issues & the Welfare of Mankind

**Tohoku University : CDM Project in China**
- Tohoku Univ. & JCF Inc. introduced “Coke Dry Quenching System” to Shansi’s Coke Industry
- This project is registered to the CDM, a part of “the Kyoto-Mechanism”
- Contributing improvement of China’s energy efficiency & Japan’s target of CO₂ mitigation

**Kinki University : Farm-raised Sustainable Tuna**
- Kinki Univ. succeeded completely farm-raised Bluefin Tuna
- Contributing to Breadbasket Issue, Marine Resources Issue & Food Safety Problem

**Kyoto University : Global I-U Cooperation on iPS etc.**
- Cooperation on iPS research with Harvard Univ., Toronto Univ., Novocell Inc.…
- Forming Global I-U Research Network aiming at Clinical Applications.
- Establish overseas offices (in Beijing, London) for global I-U Collaborations
Open use of the Advanced Research Facilities

- Super computing system
- Synchrotron radiation facilities
- High-power laser system
- Measurement and analysis equipments etc.

Hokkaido/Tohoku district
- Hokkaido University
- Tohoku University

Chubu district
- Shinsyu University
- Sizuoka University
- Nagoya University
- National Institute of Natural Sciences and cooperation institutions

Kinki district
- Osaka University
- Kyoto University and cooperation institutions
- Japan Atomic Energy Agency

Chugoku/Shikoku/Kyusyu district
- Hiroshima University
- Kyusyu University and cooperation institutions

Kanto district
- Tsukuba University
- High Energy Accelerator Research Organization
- National Institute for Materials Sciences
- National Institute of Advanced Industrial Science and Technology
- University of Tokyo
- Tokyo Institute of Technology
- Waseda University
- Riken
- Japan Agency for Marine-Earth Science and Technology
- Yokohama City University

Spring-8/XFEL
Next-Generation Supercomputer
J-PARC

They are listed in "The Law for the Promotion of Public Utilization of the Specific Advanced Large Research Facilities"
Conclusion

- I-U collaboration in Japan has been greatly developed in the last decade.

- As an assignment of the next decade, the Japanese University will develop Global I-U Collaboration activities, in order to contribute to Global Issues and the Welfare of Mankind.

- They are looking for and welcome I&U partners from across the world. There are many technological seeds and research environment in Japan.

- Japanese Government strongly supports those global I-U collaboration, which will show the competitiveness of research of Japanese Universities.
Thank you for your attention!

We welcome your comments and questions.

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