

Knowledge Transfer from University to Industry in Japan

BRIDGING BORDERS FOR TECHNOLOGY TRANSFER IN GERMANY AND
JAPAN TAKING INNOVATION ABROAD

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Koichi Sumikura, Professor at National Graduate Institute for Policy Studies (GRIPS).

- In March 1998 he got a Ph.D. in engineering from the University of Tokyo, for his study on bio-engineering.
During April 1998 and September 2001, he had been working at Research Center for Advanced Science and Technology, the University of Tokyo.
In October 2001 he got a position of Associate Professor at GRIPS.
He has been working as Professor at GRIPS since April 2016.
During June 2012 and May 2015, he had also been working as Director of Research, 2nd Theory-Oriented Research Group, National Institute of Science and Technology Policy (NISTEP).
He has been a board member of the Japan Society for Research Policy and Innovation Management since 2001.
He is also teaching at the University of Tokyo, Waseda University, Tokyo University of Agriculture and Technology, and Yokohama City University.
His main fields of research are, intellectual property strategy; policy for research and innovation; contribution of academic knowledge to innovation; life sciences and society.



scirex.grips.ac.jp/en/

SciREX Science for RE-designing Science, Technology and Innovation Policy

日本語

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DOOR 社会をつなぐメディア

Leveraging Metaverse for inclusion: a case study for socially withdrawn "Hikikomori"

+March 30: DII Seminar: Leveraging Metaverse for inclusion: a case study for socially withdrawn "Hikikomori"

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<p>06/08/2023</p> <p>SciREX Core Contents 1.4</p>	<p>04/19/2022</p> <p>+SciREX Competitive Program begins Solicitation for JFY2022 cycle</p>
<p>04/19/2022</p> <p>SciREX Quarterlies No. 17 & No. 18</p>	<p>03/22/2022</p> <p>+March 30: DII Seminar: Leveraging Metaverse for inclusion: a case study for socially withdrawn "Hikikomori"</p>
<p>02/16/2022</p> <p>March 15: SciREX Open Forum Session 4: To make the Prescription for Strengthening Japan's Research Capabilities work more effective</p>	<p>02/16/2022</p> <p>March 7: SciREX Open Forum: Session 3: How can we design the STI Policy to Realize a Sustainable Social System? -Toward the post-pandemic era</p>

30°C 曇り時々晴れ

検索

15:38 2023/09/27

GRIPS is the core institute of MEXT's SciREX (Science for RE-designing Science, Technology and Innovation Policy) Program. <https://scirex.grips.ac.jp/en/>

The Basic Plan for Science, Technology and Innovation in Japan

- 1995: Basic Act on Science and Technology
- 1996-2001: The 1st Basic Plan for Science and Technology
- 2021: Basic Act on Science, Technology and Innovation
- 2021-2026: [The 6th Basic Plan for Science, Technology and Innovation](#)

>> What is the Society 5.0 we are aiming at?
- the sustainable and resilient society to secure people's safety and security.
- the society each person can realize "well-being."

>> Policy for Society 5.0 to realize well-being of each person.
- construction of innovation eco-system
- creation of smart city
- improving research capacity, by open science and data-driven research

Basic Act on Science, Technology and Innovation

- Article 1
- The objective of this law is to achieve a higher standard of science and technology (hereinafter referred to as "S&T") and promotion of implementing innovation, to contribute to the development of the economy and society in Japan and to the improvement of the welfare of the nation, as well as to contribute to the progress of S&T in the world and the sustainable development of human society, through prescribing the basic policy requirements for the promotion of S&T and implementation of innovation and comprehensively and systematically promoting policies for the progress of S&T and implementation of innovation.

Intellectual Property Basic Act (Act No. 122 of 2002)

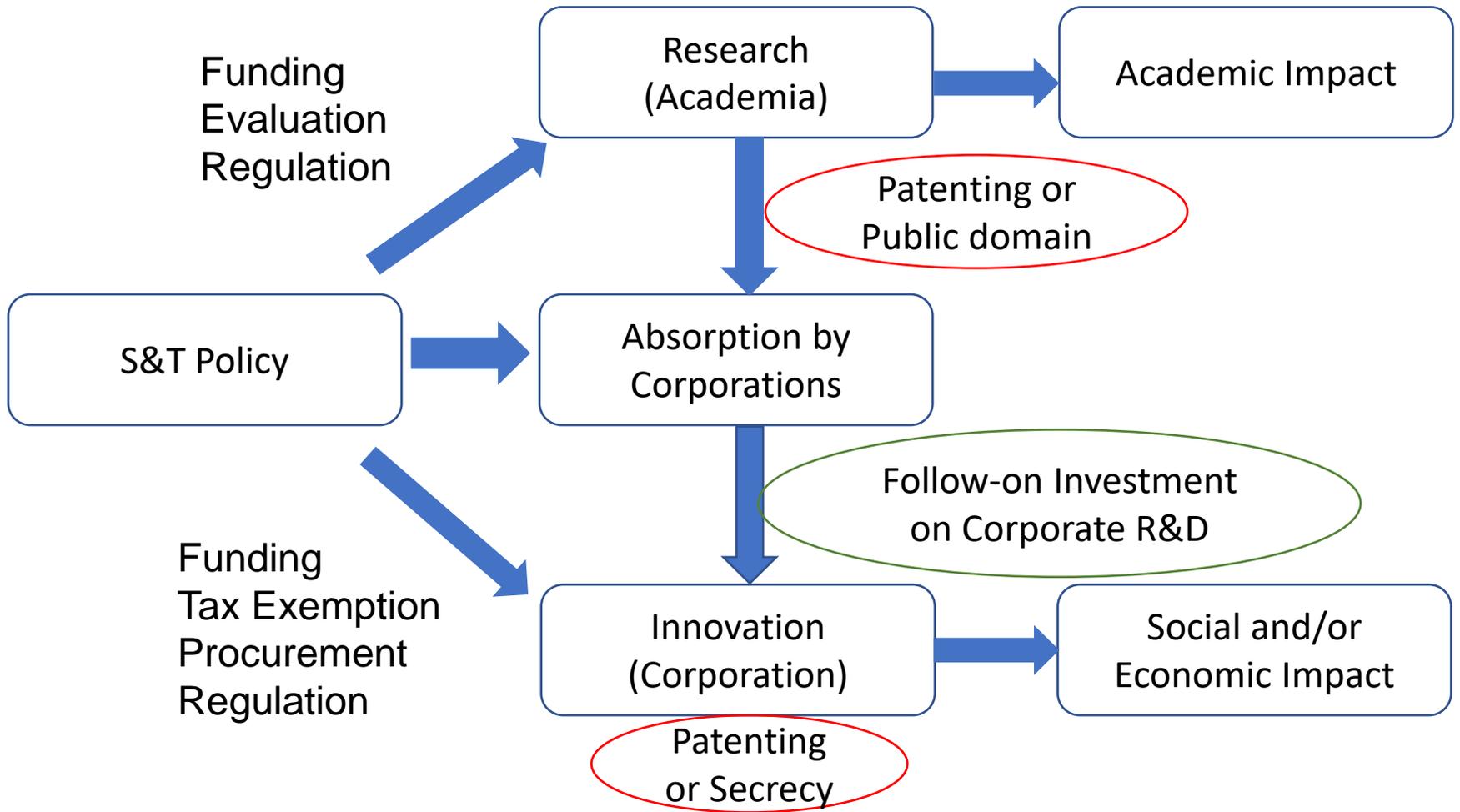
- Article 13 (Promotion of transfer of Research and Development results, etc.)
- In light of the fact that Research and Development results achieved by **universities**, etc. are useful for the development of new business fields and the improvement of industrial technology, **national government** shall take necessary measures to encourage **universities**, etc. to properly manage their Research and Development results and smoothly transfer the results to **business operators**, such as improving systems in **universities**, etc. to utilize human resources that have expert knowledge on intellectual property, improving such proceedings pertaining to registration for establishment on intellectual property, carrying out research and study market, etc., and providing market information.

The Strategic Program for the Creation, Protection and Exploitation of Intellectual Property (July 2003)

- 1. Creation
- 2. Protection
- 3. Exploitation
- 4. The Dramatic Expansion of Content Business
- 5. Developing Human Resources and Improving Public Awareness

http://www.kantei.go.jp/foreign/policy/titeki/kettei/040527_e.html

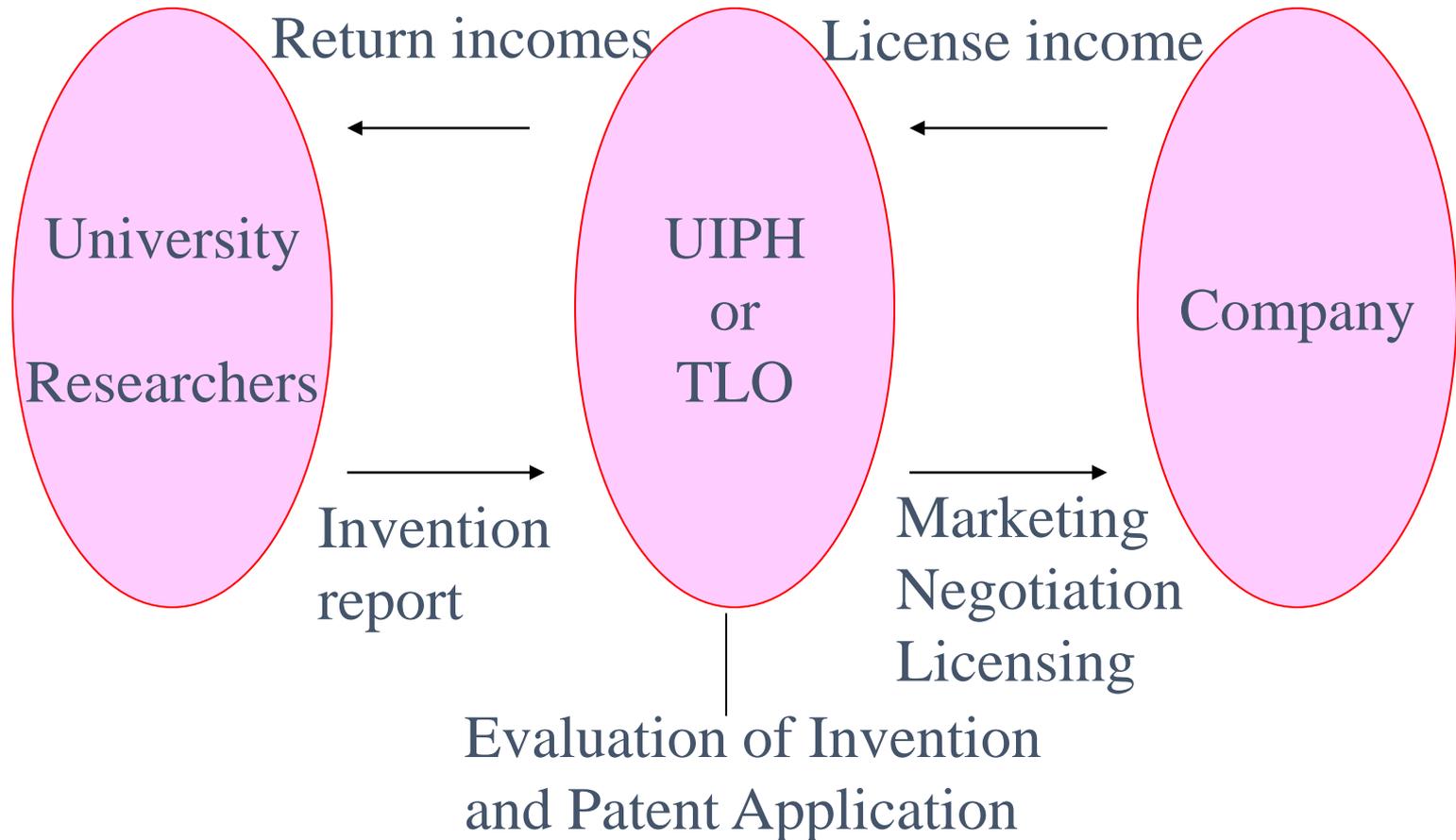
Since 2004, “Intellectual Property Strategic Program” has been released annually.



Environment over industry-university cooperation in Japan

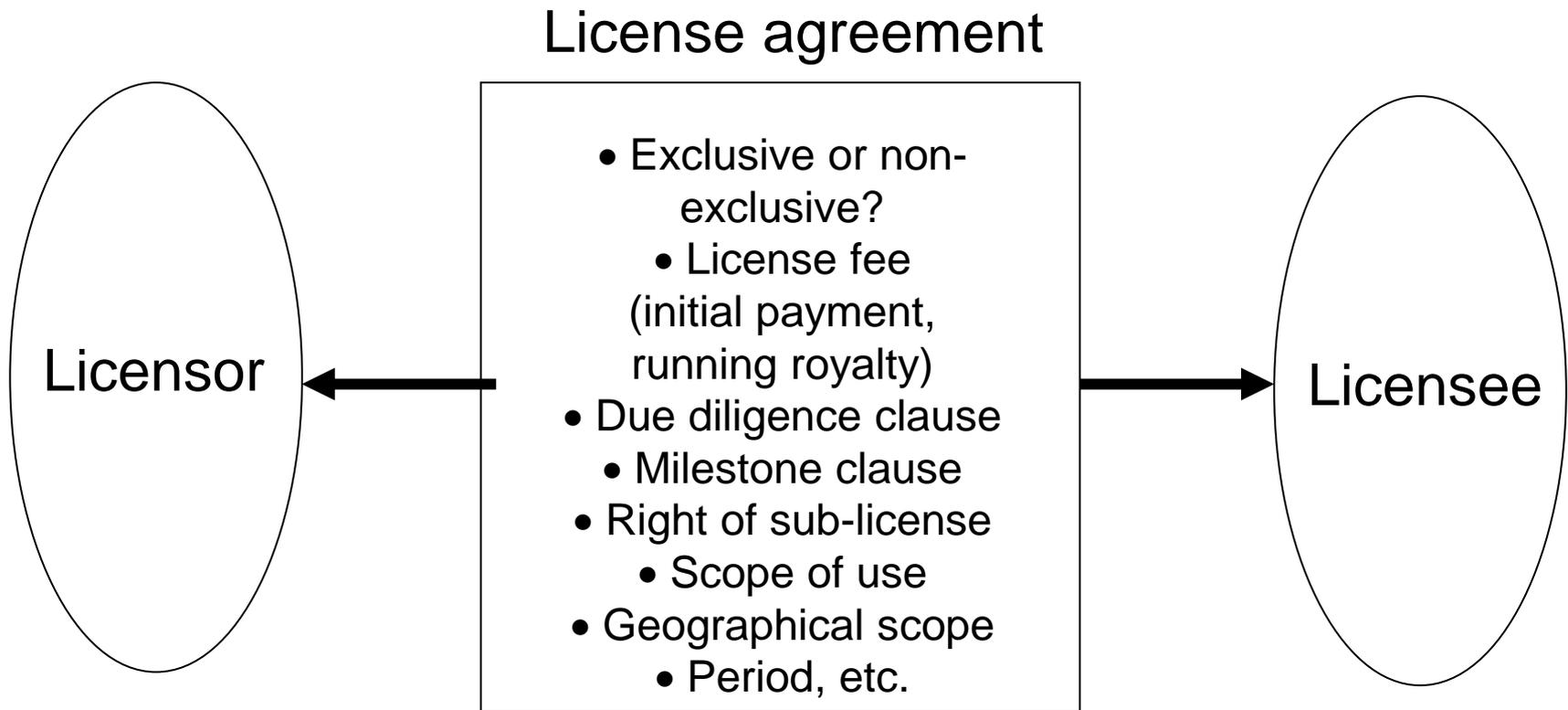
- 1998- University technology Transfer Promotion Act
Subsidy or debt underwriting for approved TLO
- 1999-Special Measures Law on Industrial Energy Regeneration
Articles 32 and 33, discount of patent fee and charge for approved TLO
- 2000-Removal of ban on national university teacher serving as TLO officer
- 2000-Law on Reinforcement of Industrial Technical Capacity
Discount of patent fee and charge for university teacher or university
Deregulation on national university professors serving as private company officer
Free use of national property by TLO
- 2000-Promotion of organizational management and exploitation of patents in national universities (notification)
National patent is now assignable to authorized TLO.
- 2004-Corporatization of national university
- There are 32 approved TLOs (as of April 2023).

University Intellectual Property Headquarters
or Technology Licensing Organizations (TLOs)
take a role of patent filing and marketing and return license incomes
to inventors and universities.



Function of “Licensing Associates”

Licensing terms have to be determined in the agreement



Arrow shows a flow of knowledge/ intellectual property.

(1) Business proposal by a license associate of TLO

(2) Spin-off startups from university

Applied research/development

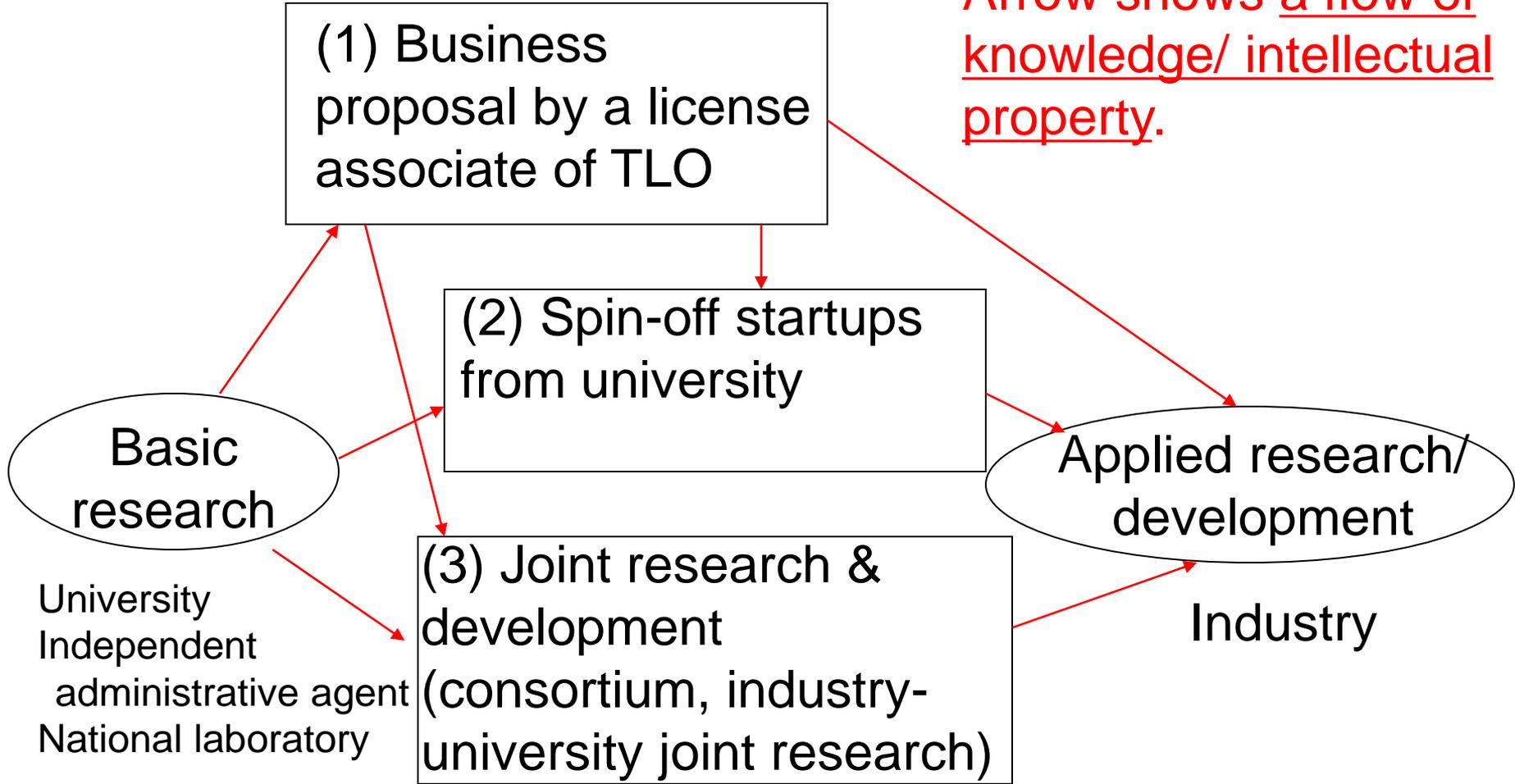
Basic research

(3) Joint research & development
(consortium, industry-university joint research)

University
Independent administrative agent
National laboratory

Industry

Gap (Valley of Death) between basic research and applied research/development in national innovation system.



SMRITI MALLAPATY “Japan’s start-up gulf,” NATURE INDEX 20 MARCH 2019

- The accepted wisdom is that scientists in Japan are either respected or rich; not both. Then there’s **Hiroaki Suga**.
- Suga, a chemist, heads a laboratory at The University of Tokyo (UTokyo) and is the co-founder of **PeptiDream**, a US\$5 billion biotech company. His experience is seen as proof that professors in Japan can be successful in both academia and industry. “**People have realized that you can keep doing good science while also having a large impact on society,**” he says.
- PeptiDream is often referred to as **the type of science-driven innovation** that the Japanese government wants more of: **fundamental research is translated into profitable products with tangible societal benefits.**

SMRITI MALLAPATY “Japan’s start-up gulf,” NATURE INDEX 20 MARCH 2019

- **Takafumi Yamamoto**, president of Todai TLO, a technology licensing office owned by UTokyo, attributes the sluggish growth to **Japan’s risk-averse culture**. “We face a lack of entrepreneurship,” he says. But, he recognizes the sector’s significant progress given its late start.
- When Yamamoto started in the tech transfer business in 1996, most faculty had no interest in filing patents, he says. **Today, professors routinely prepare PowerPoint presentations about how their technology could contribute to society**. The mindset of industry is also changing, says Yamamoto, towards **open innovation and university collaboration**.

SMRITI MALLAPATY “Japan’s start-up gulf,” NATURE INDEX 20 MARCH 2019

- In 2016, according to UNITT, only **26.5%** of Japan’s research institutions and TLOs launched a start-up; the comparable number in the US that year was **79.6%**.
- Only **3.9%** of university technologies in Japan are licensed to start-ups, compared to **17.1%** of licenses in the US.

SMRITI MALLAPATY “Japan’s start-up gulf,” NATURE INDEX 20 MARCH 2019

- In a 2014 survey of 264 Japanese companies, **Koichi Sumikura**, an innovation policy analyst at the research institute GRIPS, found significant discrepancies in their views of domestic versus international academic collaborators. **These companies tended to hold Japanese universities in lower regard than foreign institutions, especially when looking at the pace of research and its commercial practicality.**
- The companies felt that Japanese TLOs were unable to provide the administrative infrastructure and services needed to support collaborations with academia. They also feared that trade secrets were leaked to competitors. **There is a clear discrepancy, says Sumikura, between the corporate drive to quickly turn research results into commercial applications, and the academic incentives to publish papers on basic research.**

Problems on the side of university or PRIs (N=264)

(The data from the corporations that answered on both of domestic and foreign university and PRIs were collected.)



For more information, please refer to my recent article.

- Koichi Sumikura (2022)
“Mission-oriented Innovation Policies in Japan: focusing on function of intellectual property and technology transfer,”
Asian Research Policy, Vol.13, December 2022, 84-91.
https://swallow.kistep.re.kr/arplissue.es?act=content_view&list_no=215&act=content_view&mid=a20802000000

Thank you very much!